THE CULTIVATOR.

"TO IMPROVE THE SOIL AND THE MIND."

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Culture and Manufacture of Flax.

It is doubtless known to most of our readers that flax is largely cultivated in some parts of the country, wholly for the seed, the stalks being thrown away. In some of the rich districts of Ohio, particularly in the Miami Valley, this branch of agriculture is carried on to a great extent. A correspondent of the Ohio *Dollar Statesman* gives an interesting account of the flax culture of that section, with some valuable suggestions in regard to the manufacture of flax. He states the average yield of seed at ten bushels per acre, though in some instances it reaches fifteen bushels. The ordinary price per bushel in Dayton, where the seed is principally sold and the oil extracted from it, is eighty cents to a dollar; but last year, owing to scarcity, the price ranged from a dollar and ten cents to a dollar and forty cents per bushel, of 52 pounds. The amount of seed worked up in the city of Dayton annually, is put down at 150,000 bushels. There are five mills, which, altogether, use ten hydrostatic presses, some of them having a power of 1,000 tons each. The oil is principally sent to Cincinnati and thence to New-York, and the oil-cake is exported to England, where it brings $40 to $50 per ton, and is used for fatting cattle and sheep.

The income which the crop affords per acre, after paying all expenses, is given as $3. This must be considered a small amount, though some additional credit may be allowed the crop from the fact, as stated, that the farmers are able to obtain "a much larger return of wheat, to be sown after flax, than used to be harvested when that crop followed in succession after corn, or even summer fallow." The writer suggests that a system may be adopted by which the profits of the crop may be greatly increased. The quantity of seed, he thinks, may be brought up to 20 bushels per acre, and four to five hundred pounds of fibre may be obtained in addition —the seed to average ninety cents to a dollar per bushel, and the fibre eight to ten cents per pound. The following extracts denote the writer's views in regard to the proper course to obtain these results:

To obtain so large a return of fibre and seed, an improved system of cultivation and rotation of crops will have to be put in practice. What this system is, I shall presently explain. Flax requires a rich soil, one that is calculated to produce an abundant yield of straw; and the subsoil within from eight to twelve inches of the surface, should be clay. This, however, is not absolutely necessary, but a strong fibre, and an abundant yield of seed, are not so likely to be obtained from a sandy soil, or where it is principally composed of vegetable remains to the depth of from one to two feet, as where the clay comes within from six to ten inches of the surface. The soil for flax should be plowed in the autumn to the depth of from eight to ten inches, and in the spring it should be again plowed, harrowed and rolled before the seed is sown. Instead of sowing from three to four bushels per acre, not more than two should be sown. The period for sowing the seed should invariably be governed by the following simple rule, that has, in all countries where flax is extensively grown, been found to give a large return, even in adverse years. As soon as the indigenous forest trees begin to put out their leaves, the sowing of flax should be commenced, and the entire operation should be completed by the time that the leaves are fully out. The seed should be covered very lightly, and as soon as the plants are above ground, a top-dressing of one bushel of salt, one bushel of plaster of Paris or gypsum, and two of common house ashes to be sown broadcast, will secure a vigorous growth, although the season may be very adverse for the flax crop. By the first of July, the crop will be ready to be pulled, and this operation will require a large force of hands, if the crop be large, to secure its being done at the proper season. As soon as the straw begins to get yellow, and whilst the capsules or seed balls have yet a light green color, the business of pulling the crop should be commenced, and as soon as practicable after that period, the entire crop should be pulled. By early pulling, the seed will have a bright appearance, and the straw will have an uniform color and texture, and be worth at least twenty-five per cent. more for manufacturing purposes, than if pulled when ripe. Flax may be pulled in the neighborhood of large towns, where redundancy of labor of the right description, can usually be had for $3 per acre, including board, lodging, &c.; and in a densely populated neighborhood some distance from town for $3.50 per acre; which of course would include binding and shocking. This expense may be considerably reduced by using a machine for pulling flax, that was invented at the village of Waterloo, Seneca county, New-York. This machine, by the aid of one horse, a man and a boy, will pull from three to four acres per day, performing the work, if the crop stands up tolerably well, with as much neatness as though it was done by hand.

As soon as the straw becomes cured, it should be drawn to the barn to be threshed, which labor will require to be performed with the flail. The next process is water or dew-rotting; then follows the breaking and scutching, the latter of which finally prepares the fibre for market. Much skill is required to properly rot, break and scutch flax, but like all other branches of industry, it may be mastered, provided those who engage in it are determined to overcome all difficulties. Competent hands may be had, consisting of experienced flax dressers who have emigrated from the flax-growing countries of Europe in order to improve their condition, and those who en-

gage extensively in the growth of this crop, should secure the services of men who understand the business in all its branches. The day has passed when flax can be successfully broken and scutched by hand labor. Breakers and scutchers to be driven by steam or water power, are the only means that are now thought practicable to manage flax so as to make linen goods sufficiently cheap to compete with cottons. Machinery can be had that will not cost beyond $400, which will clean in a proper manner from 500 to 600 lbs. of clean scutched flax per day, at an average cost, including the expense of rotting, of not more than two cents per lb. for clean scutched flax. Great improvements have been made in Ireland, in Scotland and in some portions of the United States, in the machinery for the preparation of flax for market; and those who may extensively engage in the business, would do well to make themselves acquainted with those improvements, and employ such as have been found the most economical and efficient.

The annual importation of all descriptions of flaxen goods in our country, cannot be much less than $10,000,000, and the high duty that is levied upon goods of this description, the exchange between Europe and this country, the cost of transportation, &c., afford a guarantee of the most substantial kind, for the profitable prosecution of the linen business. Machinery for some years past has been in successful operation in Scotland, in the north of Ireland, and in Leeds, England, for the spinning and weaving of flax goods, which turns out linen fabrics of the finest staple at nearly as low rates as what it costs to manufacture cotton goods. In Massachusetts, and in Paterson, N. J., similar machinery has been for some time employed in extensive linen and shoe thread establishments, and the prospect now is, if the farmers will only come up to the work as they might do by employing more skill in their business, that the United States before long will be as independent of other countries for linens, as they have nearly become in cotton and woolen goods.

The value of a good quality of flax in England, may be fairly quoted at from $150 to $300 per ton, at which price it might be sent to that market from Ohio, netting a fair profit to the grower, if machinery of the most improved description and skilful laborers be employed in prosecuting the business. The annual importation of flax and flax seed into Great Britain for the past ten years, has cost $50,000,000, and not a fraction of that money finds its way into the hands of the farmers of the United States. But what makes this matter still worse, a considerable portion of this flax is manufactured, on which the British manufacturer makes a large profit; it is then shipped to our country, a high duty is paid at the port of entrance; it is then sold at a considerable higher profit than if it were manufactured here. To place this great interest on its true and legitimate basis, we, as a people, must become not only the producers, but the manufacturers of linen fabrics, threads and twines; and by availing ourselves of the improvements effected in other countries, where the growth and manufacture of flax is a leading branch of agricultural and mechanical industry, it will be found to be productive of the most important results to the inhabitants of this State.

I am highly gratified in being able to inform you that a beginning, for the first time, has been made in this city, in the manufacture of flax goods, which affords the strongest evidence that an entire revolution will shortly be made in the business of flax growing in Montgomery county. The establishment is owned and conducted by Messrs. McCann, Carnegie & Co., who have embarked some $15,000 in it, employing the most improved Scotch machinery, and also Scotch spinners and weavers. The firm purchase the flax straw of the farmers, paying for it at the rate of $7 to $10 per ton, according to quality and rot, break and scutch it themselves. The breaking and scutching apparatus are constructed on a plan very different from those in general use, which are driven by water power, performing the work with greater despatch and efficiency than any machinery for that purpose that has been introduced into this western country. The tow made by the scutchers is manufactured at present into a strong and even carpet thread, and the clean scutched flax is manufactured into twines, &c., all of which will be sent to the Boston market.

The Flax Rust—(*Puccinia Lini.*)

BY ASA FITCH, M. D.

In connection with the preceding article, we have thought it proper to give the following remarks, written for the forthcoming volume of the N. Y. State Ag. Society's *Transactions*, in reference to a malady which has in some instances proved very injurious to the flax plant, and a considerable hindrance to its cultivation.—EDS.

The disaster of which we are about to speak, is altogether the most baleful of any to which the flax crop in Eastern New-York is subject. And yet, in but a single instance do we find any allusion to it, in the botanical and agricultural works which we have at hand, though some of these latter profess to treat of "all" the diseases and casualties to which this crop is liable.

In the Transactions of the Society of Arts of the State of New-York, vol. ii, pp. 185, 187, is a short article from the pen of the Hon. Ezra L'Hommedieu, entitled "Description of a late disease in flax on Long-Island," in which we are informed that this disease first commenced in the town of Bridgehampton, near the east end of that island, about the year 1803, and the following year extended eight or ten miles further, and within two years thereafter was all over the eastern part of the island, "so that there is but little flax raised." In 1806, the same disease attacked the crops in Pittsfield and Richmond, Mass. It is described as a small black speck about the size of a pin-head, sometimes with a slight black streak about half an inch long proceeding from it; and this spot, it is stated, comes only upon or near the middle of the stalk, and does not make its appearance till the flax is pulled and dried. We think this description is drawn from specimens in the incipient stage of their growth, or else that at that early day the disease had not developed itself so far as to put on the marks which it now wears. On being dressed, the flax-stalk, it is stated, breaks in two where this spot appears; and though the affection was popularly regarded as a kind of mildew, Mr. L'Hommedieu thinks it more likely that it proceeds from the sting of an insect, which lets out the sap or juice, and rots the stalk in that part—though he had been unable to detect any insect which he could regard as producing this wound.

We proceed to give the facts that are within our knowledge, respecting this disease.

The "flax-rust," as it is termed by our farmers, seems to prevail more in some years than in others. In 1846, several fields were badly injured by it. The past year, 1849, which was noted for its drouth, there was scarcely any of it. Upon one point, our flax-growers generally concur. Where it does ap-

pear, it is almost invariably upon flax growing upon land that has been fertilized by artificial manuring. It would hence seem that a rank, luxuriant growth, such as an unduly rich soil produces, was a prominent exciting cause of this malady. Crops of flax, moreover, that are unusually late, seldom escape. Gen. McNaughton, of Salem, relates to me a notable instance, illustrating this fact. An old resident in his neighborhood, though a very worthy citizen, was always behind-hand with his work, so that he was never known to get his flax sown until some time in the month of May; and he was never known to have a crop but what was badly rusted—this disease commonly making its access after the patches of flax on the adjoining farms had all been pulled.

It is a little before the flax is gathered, that this malady usually makes its appearance. The earlier the attack, the greater is the injury. If it does not come on until just as the flax is being pulled, it is believed that it causes but slight damage. It comes in the form of black spots, looking as though a small drop of tar or some such substance, had previously been put upon the stem, and had spread out into a thin pellicle, concreting upon and adhering to the surface. If these spots have any different appearance in the incipient stages of their formation, none of my informants have observed it. They appear mostly upon the upper and branching parts of the stalk, but are sometimes scattered along its whole length; and wherever one of these spots appear, it rots off and destroys that part of the fibres of the flax with which it is in contact. If the spots are only at the top of the stalk, the injury is but slight; but when a solitary spot occurs any where near the middle of the stalk, every fibre with which it is in contact is lost; for the reason that, when the flax comes to be dressed, as it is held under the knives of the dressing machine, the upper part of all those fibres which have been cut asunder by the rust-spot, is whipped out among the tow; and when the operator turns the handful to dress its opposite end, the remaining part of these same fibres is similarly taken away. Hence a spot of this mildew reaching half round a stalk near its middle, occasions a loss of half the fibres in the stalk; and this seems the more lamentable, because these wasted fibres are good flax, except the minute portion that was covered by the rust. As an example of the loss that is sometimes experienced from this cause, the following may be related. Anson Collins, of Jackson, in 1846, sowed an acre of flax beside his barn, where the soil, it is evident, would be in a high condition as to fertility. It grew finely, and from its thrifty appearance, there was no doubt it would have yielded over two hundred pounds of dressed flax. But the rust invaded it, and from this cause alone, forty pounds was the entire product of the piece.

I have had no opportunity of seeing this disease in the growing flax. A few specimens of it, however, found after much search upon dried flax, are now before me. These, I am assured, exhibit perfectly the usual appearance of this disease. The spots are about one-fourth of an inch in length, and reach about half way around the branches of the stalks on which they occur. They are of a coal-black color, their edges well defined and visibly elevated above the level of the contiguous bark. A magnifying glass shows that the epidermis or thin outer bark is unbroken, but is merely raised up, as it were in a blister, which has become black and gangrenous. There is no doubt, therefore, that these specimens are immature, and that had the flax stood a few days longer, the epidermis would have been ruptured. Enough, however, is shown by them to clearly indicate the nature of this disease. It is obviously a parasitic fungus of the group CAEOMACEÆ, or dust Fungi, of naturalists; and though its generic marks cannot be fully seen in these specimens, I have scarcely any hesitation in referring it to the genus *Puccinia*. In all the points of its history as above narrated, the reader will have perceived a close analogy between this and the common grain-rust, (*Puccinia graminis* of authors,) which so frequently attacks our oats, wheat, &c. But this flax-rust is evidently a distinct species from the grain-rust. All the best authorities discountenance the idea that the grain-rust ever attacks any plants except those pertaining to the grain and grass families. That appears, moreover, in the form of long, narrow spots, whilst here the spots are broad, oval, and with rounded, or irregularly sinuated ends. The characters herewith adduced are ample for distinguishing this species from the grain-rust, and from the several other species of blight and mildew of which I have any knowledge.* The name *Puccinia Lini*, literally meaning *the rust of flax*, is therefore proposed for this species, and a more definite description of its structure is reserved, until it has been examined in its growing and matured state.

To render this subject more plain to the general reader, it may be observed, that the rust-spots on flax, as on other plants, are occasioned by clusters or tufts of exceedingly minute mushrooms, which take root among the fibres of the inner bark, and by their growth raise up and distend the epidermis until it bursts; whereupon their seeds escape and float off in the atmosphere, or settle to the ground. How these nearly infinitesimal seeds find their way into the plant, to there vegetate, is not conclusively ascertained. The most plausible supposition appears to be, that they are disseminated in the soil, from whence they are imbibed by the roots of the plant, and are carried upwards by its juices, until they reach the appropriate places for them to grow. Drawing their nourishment from among the fibres of the flax, that portion of these fibres which is thus exhausted, withers and decays. Yet if the fungi have only commenced growing when the flax is pulled and dried, their further growth is arrested, and the fibres in which they have nestled are then but slightly disorganized.

From the facts that have now been related, it appears that the main safeguard against this malady, is early sowing upon ground that is not fertile to excess, especially from raw animal manures.

Where, from the vigorous growth of the flax, there is reason to fear it may be invaded by the rust, as the period for gathering it approaches, it should be closely watched, and that part of the field particularly examined where the crop is most luxuriant. And if it is discovered at any time that this blight is making its appearance upon the stalks so as to threaten serious injury, the crop should be pulled and dried without delay. Thus the loss which is otherwise inevitable, may be averted. There is but one consideration that will cause any one to hesitate in adopting this course, and that is the diminished amount of seed that is liable to be obtained if the crop is prematurely gathered. The rust, however, does not commonly make its appearance until

* How numerous are the kinds of rust, blight, smut, &c., which infest the vegetation of this country, is indicated by the fact, that that distinguished botanist, the late Rev. L. de Schweinitz, in his "Synopsis of North American Fungi," published in the Transactions of the American Philosophical Society, vol. iv, pp. 141—316, enumerates as known to him, forty-two species of *Puccinia*, and a yet larger number pertaining to each of the allied genera, *Uredo* and *Æcidium*.

near the time for pulling the flax, when most of the balls are so far advanced that the seed within them will ripen, though they are more immature than is desirable. The loss in the seed will therefore in most cases be small, compared with the loss that will be sustained in lint, if the crop remains many days ungathered, after this malady makes its appearance.

Agricultural Chemistry.

EDS. CULTIVATOR—The application of Chemistry to Agriculture formed a new era in agricultural improvement. Scientific minds brought their energies to bear on the subject, and a vast amount of knowledge is the result of their investigations. The theories of active, inquiring minds which experiments seemed to sustain, were tested,—those that were true, established, and those that were false, abandoned,—and every truth developed, prepared the way for further discoveries. Science answers the interrogatories of Art, which must otherwise have remained in doubt; for speculative experiments in agriculture lead to no results that can be relied on.

Works on Agricultural Chemistry are so numerous, that all may furnish themselves with the means to become acquainted in some degree with the *science* of agriculture. The results of experiments conducted by deep-searching minds, have been given to the world. The operations of nature in the chemical changes that are constantly taking place in the vegetable kingdom, are no longer shrouded in mystery; for the laws that govern vegetation in its rise, growth and decay, have been searched out by science, and are now plainly understood.

Prof. Liebig has given in his "*Familiar Letters on Chemistry*,"* a great amount of information at once interesting and instructive; and it may be studied with profit by the farmer, manufacturer and merchant. The application of chemistry to physiology, is perhaps, not so generally understood as in its application to agriculture. It is true, man may live and breathe, eat, drink, and labor through a long life, in entire ignorance of the laws of his being; without understanding how he lives, why he breathes, or in what way food sustains life, and adapts his system to endure labor. Still it is not to be denied, that with a knowledge of physiological laws, he might escape many of the ills of life that ignorance inflicts upon him. Every one knows that the system daily requires a certain amount of food, but few know how much it requires, except as they are told by the appetite, and that is not an unerring monitor. Especially in the case of young children, ignorance is the rule rather than the exception, as to the quantity and kind of food necessary for life and perfect health. Food must contain all the elements that form the various parts of the system, and what is required to sustain the waste that is constantly going on. But what are these elements? and why is one kind of food more nutritious than another? or why nutritious at all? Science alone can answer these questions. Flesh, blood and bone contain nitrogen and phosphates, therefore the food must contain these, or it cannot be converted into blood, which is the life of the system. A part of the food must also consist of carbon and hydrogen, for the oxygen that is taken into the lungs in respiration, combines with these elements for the production of animal heat. Hence, life cannot be sustained by gum, starch, sugar or spirits, because they contain neither nitrogen or phosphates, nor can respiration be continued without these in some form; that is, their carbon and hydrogen. In feeding animals, a knowledge of this subject is important, in order to understand what substances are best adapted to the growth of muscle and fat, or to give strength to labor. It would not do to feed animals on turneps or potatoes alone, as they contain from 75 to 92 per cent. of water, and but a small portion of nitrogen. It is well known that hay is better than grass for working animals, and still better is it to feed some with oats or corn. Chemistry as applied to physiology, informs us in regard to all these matters, and is a study with which all farmers should be acquainted.

A knowledge of agricultural chemistry is but little disseminated, even among that class of people that it is especially designed to benefit. Indeed, the science is not yet fully developed, for the field of investigation is extensive, and progress necessarily slow, owing to the complicated nature of chemical examinations and experiments. But much has already been done, and the knowledge elicited is exerting a great influence in agricultural improvement. In the results of investigations that have been reached by different processes of reasoning and experiments, it would be strange if there was always an exact agreement. But if there are errors, no doubt but in time they will be discovered and corrected. It is the generally received opinion, I think, that manures are valuable in proportion to the amount of nitrogen they contain. Dr. Dana maintains this opinion in his *Muck Manual*, p. 123. "The nitrogen then, in dung, is that organic element, to which must be attributed its chief enriching quality." And on page 143, "A great part of the value of bone as a manure, depends on its cartilage." Liebig in Letter 16, says—"My recent researches into the constituent ingredients of our cultivated fields, have led me to the conclusion that of all the elements furnished to plants by the soil, and ministering to their nourishment, the phosphate of lime, or rather the phosphates generally, must be regarded as the most important." p. 52, "Bones contain from 30 to 36 per cent. of earthy matter—chiefly phosphate of lime, and the remainder is gelatine. Their efficacy as manure does not depend, as has been generally but erroneously supposed, upon the nitrogenized matter which they contain, but on their phosphate of lime." pp. 14, 54.

Liebig also maintains that the atmosphere contains a sufficient quantity of carbon and nitrogen, for all the purposes of vegetation, and if the other elements exist in the soil, these will be supplied from the atmosphere. By a process of reasoning which appears perfectly correct, in which a great variety of facts and experiments are taken into consideration, he arrives at the following conclusion:—"The effect of an artificial supply of ammonia as a source of nitrogen, is therefore, precisely analogous to that of humus as a source of carbonic acid—it is limited to a *gain of time;* that is, it accelerates the development of plants. This is of great importance, and should always be taken into account in gardening, especially in the treatment of the kitchen garden: and as much as possible in agriculture on a large scale, where the time occupied in the growth of the plants cultivated is of importance." p. 52.

The following extract shows plainly the importance of *science* in conducting farming operations successfully. If a farmer, without the guidance of

* Chemistry, in its Application to Physiology, Agriculture, and Commerce. By Professor Liebig. Fowler & Wells, New-York. Price 20 cents.

just scientific principles, is trying experiments to render a field fertile for a plant which it will not otherwise bear, his prospect of success is very small. Thousands of farmers try such experiments in various directions, the result of which is a mass of practical experience, forming a method of cultivation which accomplishes the desired end, for certain places; but the same method frequently does not succeed—it indeed ceases to be applicable to a second or third place in the immediate neighborhood. How large a capital, and how much power are wasted in these experiments! Very different, and far more secure, is the path indicated by SCIENCE; it exposes us to no danger of failing, but on the contrary, it furnishes us with every guaranty of success. If the cause of failure—the barrenness in the soil for one or two plants—has been discovered, means to remedy it may readily be found.

"The most exact observations prove that the method of cultivation must vary with the geognostical condition of the subsoil. In basalt, graywacke, porphyry, sandstone, limestone, &c., are certain elements indispensible to the growth of plants, and the presence of which renders them fertile. This fully explains the difference in the necessary methods of culture for different places; since it is evident that the essential elements of the soil must vary with the varieties of the composition of the rocks, from the disintegration of which they originated.

"Wheat, clover, turneps, for example, each require certain elements from the soil; they will not flourish where the appropriate elements are absent. Science teaches us what elements are essential to every species of plants by an analysis of their ashes. If therefore, a soil is found wanting in any of these elements, we discover at once the cause of its barrenness, and its removal may now be readily accomplished." p. 40.

To all interested in scientific studies, this work will be exceedingly interesting, as it contains a great amount of valuable knowledge on the subject of which it treats. It is *one* of the books that farmers need. W. L. EATON. *East Weare, N. H.*

Indian Corn.

EDS. CULTIVATOR—Taking all things into consideration, I think the Indian corn crop is one of the most important that is raised in this country. The grain is used largely as an article of human food, and for the sustenance of all our domestic animals. A few remarks in regard to its cultivation in New-England, may not be inappropriate at this season of the year.

PREPARATION OF THE GROUND.—The selection of the soil and preparing it for the crop is of importance. If you have an old tough meadow or pasture that you design for corn, plow it in November, just before the ground freezes up. Lay the ground over smooth, to the depth of eight inches, following with a subsoil plow, and going down six or eight inches lower. Then make it smooth with the roller, and let it lie till spring. When it is sufficiently dry, harrow it with a fine-tooth harrow. If you have a good lot of compost manure, give a good top-dressing, and plow it in with a shallow furrow, leaving the old sward undisturbed.

If the soil is light and mellow, it is preferable to plow and subsoil in the spring, first spreading on the coarse unfermented manure, which is to be plowed in. For marking out the rows for planting, a "corn-marker" may be used to advantage. It is made by taking a piece of scantling, three inches square and ten to twelve feet long, with teeth of hickory or white-oak, inserted at distances of two to four feet, according to the width designed for the rows. Then an old pair of wagon-thills and a pair of old plow-handles are put to it, and your marker is done. With a good horse to draw this implement, the ground may be made ready for planting very rapidly.

It has formerly been the practice in Connecticut, and still is to some extent, to plow corn-ground into ridges,—particularly when the ground is in sward. This is done by turning two furrows together, leaving a narrow strip between the furrows to be plowed afterwards. This mode requires a great deal of hard labor in the course of cultivating the crop. An experience of ten years leads me to the conclusion that a crop can be cultivated with one-third the expense, where the ground is left flat, than where it is ridged; and I see no advantage in the latter mode, except where the ground is wet.

The difference in the two modes is chiefly this:—where the ground is ridged, the corn being planted between the edges of the furrows it comes immediately in contact with the manure, springs up and grows rapidly the fore part of the season. Where the ground is left flat, and the manure turned under the furrows, the corn will often look feeble at first, and in growth will frequently be much behind that on ridges; and the inference, early in the season, is, that the ridged ground will give the best crop; but as soon as the roots of the corn on the flat ground, get hold of the manure, (say about the 20th of July,) the corn will shoot rapidly ahead, and the full force of the manure will be given to the stalk just at the time of forming the grain. Corn cultivated in this way, if the soil is deeply tilled, will often keep green, while that on ridges is dried up.

PREPARING SEED AND PLANTING.—Many farmers, at planting, shell the corn off the cob and plant it dry. Others soak it a few days in warm water. But when the seed is only treated in this way, it is very likely to be pulled up by birds and injured by worms. To prevent this, I first soak the corn in a strong solution of salt-petre; then take a quantity of tar, and having warmed it over a fire, pour it on the corn, and stir with a stick or paddle till the corn is all smeared with the tar; then add plaster till the corn will separate freely; and have no trouble in planting.

It is sometimes complained that tarred corn does not come up well; but when it is arranged as here described, there is no trouble on this score. No birds, not even crows, will pull it up. Some of my neighbors, who planted their corn without tarring, and whose fields were strung entirely round with cord the past season, suffered much by these birds. There is something in the smell of tar which is disliked by birds. I have frequently seen half a dozen crows at a time, walking over my corn fields; but not a hill would they touch.

The time of planting, will of course vary with the season. In this section, however, it may generally be planted from the fifteenth to the twenty-fifth of May. That which is planted late, often escapes the spring frosts, which injure that which is planted early. Thus it often happens that corn planted the 10th of May, is cut down by frost, and gains nothing over that planted the 25th of the same month.

AFTER CULTURE.—Where the ground is flat, I do not recommend the use of the plow at all; a light harrow, or a cultivator, is much better to go between the rows. If the cultivator is drawn both ways, very little labor is afterwards required with the hoe, except to weed out the hills, thin out the

stalks, &c. Formerly, a great deal of useless labor was spent in hilling up corn—indeed, in dry seasons it was worse than useless, for the corn was injured by it. The earth hauled round the stalk does not assist its growth, nor aid in holding it up—the brace roots, which come out as the stalk increases in height, support it; and it has been observed, that in a heavy storm and thunder-gust, corn that is hilled will be broken down more than that which is not hilled. The ground which is kept level has also the advantage of more readily absorbing rain—rendering the crop less liable to suffer from drouth.

I generally give corn two regular hoeings, and after haying, (say first of August,) go through the field with the hoe and clean out the weeds. My fields are generally clean, under this system; but it should be made a rule to keep down the weeds at any rate.

HARVESTING.—My way is this: two hands take five rows, cutting the corn close to the ground. They leave a hill standing to form the centre of the shock, placing the stalks round it—never laying them on the ground. After the shock is made of sufficient size, take a band of straw, and having turned down the tops of the stalks, bind them firmly, and the work is done.

Corn may be cut up as soon as the centre of the grain is glazed, even if the stalks are green. There will be sufficient nutriment in the stalk to perfect the ear; and the fodder is much better than when it gets dry before it is cut. If the shocks are well put up, they may stand four or five weeks. The corn may then be husked out, and the fodder secured for winter use. L. DURAND. *Derby. Ct., March*, 1850.

Suggestions, in answer to inquiries of E. W. Jones.

(*Cultivator for March, p.* 118.)

EDITORS OF THE CULTIVATOR—In the March No. of *The Cultivator*, your correspondent, ED. W. JONES, Esq., of Clover Hill, N. C., solicits advice as to the method he shall pursue to improve Lots Nos. 6 and 7, of his land. I feel some diffidence about putting forward the following remarks in reply to his inquiries, for there are so many local and particular circumstances which I ought to know, and yet which I cannot know, that any thing I can say will doubtless need to be received with many qualifications. Your correspondent will therefore please understand that in what follows, I am addressing him, not in the language of *advice*, but in that of suggestion; and if my remarks are of any value, they are very much at his service.

The first thing to be done, in attempting the improvement of wet land, of every description, is to drain thoroughly. You are doubtless well informed as to the various approved modes of draining, some of which, with such variations as your judgment will dictate, it is to be presumed will fit your case.

After thorough drainage, and when the land is in grass, irrigation will probably prove advantageous. The water should flow gently over the surface, while the new grass is springing, and until it has grown sufficiently to cover the ground well, and then it should be taken off, or it will injure the quality of your hay. Too much water may be used,—thus drowning the grass roots and overcharging and chilling the land. While water imbibed by the soil from rains, dews, or gentle irrigation, is particularly grateful and invigorating to the cultivated grasses, stagnant water, or a soil surcharged with water, is destructive to them.

After draining, the leading fundamental idea in renovating your barren clay should be, as it seems to me, to change its texture and alter its chemical constitution. This may be done by a proper system of manuring and a proper rotation of crops. A few of your first dressings of manure will need to be heavy, in order to start the land and perceive any marked results; and it would therefore be well to avail yourself of the vegetable substances which you say are abundant on your premises, and compost them with the droppings of your farm-stock;—say as much as two parts of muck, or of vegetable mould from the woodlands, to one of manure. Having provided such a compost, I would take one of the fields in hand and plow a surface furrow, say five or six inches deep, and following with the subsoil plow, loosen the lower stratum eight or ten inches deep, which will let in warmth and moisture, and extend the range for the roots of your crops. I would plow at that season of the year which, with you, is best adapted to assist in pulverization. With me, it would be best to plow late in the fall, for the frosts of winter help very much to break down and divide the clay.

In the spring, I would spread 40 loads (or 20 cords) of compost per acre on the inverted furrows, and harrow and cross-harrow till all is fine and well mixed. Plant corn, if you please, work the land often with the cultivator or other pulverizer, and keep down all weeds, so as to have a clean surface for the following crop. I would next seed to grass with such grain and at such season of the year as is best calculated to insure a good catch of grass. In doing this, I would loosen and level the surface, without disturbing the sod underneath; for its gradual decomposition there will keep the land lighter and mellower than it would be if the sod were again brought to the surface.

In stocking to grass, I would sow the seed with a liberal hand. It should undoubtedly be a principal object with you to fill the clay intimately with grass-roots. Penetrating the soil in every direction, these roots open, loosen, and finely divide it, and admit heat and moisture. When the land is again broken up, the decay of this mass of vegetable fibre, intimately pervading the soil, mellows it, forms a sort of reservoir to receive and retain moisture, and it furnishes important nourishment to the crops of the next rotation. I would, therefore, sow at least 12 lbs. of clover seed per acre, together with 12 quarts of herd's-grass, and a half bushel of red-top seeds, or such other meadow grasses as you prefer, in like liberal proportions.

By the end of the second year, the clover will mostly disappear, and the other grasses will then take possession and form a rich sward. The clover roots, filling the clay everywhere, have finely divided it, and in their decay, will add vegetable matter for the nourishment of the other grasses. While the land is in grass, use the irrigation. It will, among other things, thicken up the sward. If you please, you can top-dress the grass with alluvial mould, or sand or gravel loam, at the rate of from 40 to 100 loads per acre, with manifest advantage to the land and the grass. You are no doubt aware that there are no improvements in farming of a more permanent nature than those made by a judicious admixture of soils. But if this is inconvenient and costs too much, a top-dressing, either of fine farm-yard and muck compost, of muck and ashes, of muck and lime, of muck and alkali in any other form, or of any of the other highly concentrated manures, will be serviceable in increasing the crop and thickening up the sward.

If, after the land has lain in grass for the space of four or five years, you have succeeded in getting

a rich, thickly-matted sward, you have gained an important point. When this sward is plowed under for a new rotation, its mechanical and other influences upon the clay will have an important bearing. As soon as this sward has formed, say in four or five years after seeding, plow again, running each plow an inch or two deeper than before, spread the same quantity of compost, and plant, sow and seed down on top of the decomposing sod, as at first. By pursuing this course for a few years, you will probably succeed in forming a fertile surface soil, of good depth, well proportioned as to vegetable mould, essentially changed in texture and composition, and producing well,—particularly a fine quantity and quality of hay for winter forage.

It strikes me that your rotation on the other five lots is rather hard for the land. I will suggest that if your rotation were,—1st, corn, with manure—2d, wheat, or other grain, with grass seeds—and then three years grass, your crops would all be heavier, and your land would improve faster with the same manure. However, I merely suggest.

With regard to "Bommer's Method," there are various good ideas and hints advanced in it that might perhaps be beneficial to follow, where one's means for making manure in other ways are limited. But with your large amount of farm-stock, and your abundant supply of muck and other vegetable substances, all the necessary manure can be made, if a system of composting and saving all is adopted.

I have attempted to "*blaze* out a track," as you request; but in trying to follow it, you may perhaps find yourself in a condition somewhat like that of the traveller in a crooked and uncertain path, with trees imperfectly marked, and nightfall settling thickly around him. F. Holbrook. *Brattleboro, Vt.*

The Dignity and Relations of Agriculture.

Eds. Cultivator—In the brief history of the creation of man, given in the sacred Scriptures, we are informed that "God formed man of the dust of the ground," and that "every herb bearing seed, and every tree yielding fruit, was given to him for meat."

The study and practice of agriculture then, has this dignity; it is directly connected with the question of the origin and sustentation of the human frame, and the human race.

The earthy origin of that frame is directly proved by the easiest chemical analysis; and its continued sustentation from the same source, is a matter of common and familiar experience.

Accordingly, after man was created, he was placed in a garden. The Hebrew word "gan," means a *hedged place*, and is appropriately translated *garden*, i. e. a *guarded place*. The name of this garden was "Eden," (Hebrew "Aden,") literally *pleasure* or *loveliness*. Here then we have the proof of the security of man's divinely appointed home, and the indication of the beauty of its location and scenery. We are further informed that "God put him in the garden to dress it and to keep it." The Hebrew word "aubad," translated to *dress*, means to *work*, and is the root from which another word, ("ebed,") which means a *servant*, is derived. The Hebrew word shamar, translated to *keep*, means to *watch* as a "watchman." Hence then, we have this result: *the original designation of man, was to a life of labor and enterprise.* All this was arranged before sin had cursed the ground, and while man was in his primeval condition.

Need another word be said then, of the utility, dignity, and I had almost said, divinity of agriculture.

After this introduction, it may be well to say something of agriculture in its relations to *utility and science.*

I. General Relations of Agriculture.

1. *To the supply of Food, Raiment, Shelter, &c.*—All these are intimately connected with the cultivation of the soil.

Barbarous countries possess a very sparse population. Thus, Asiatic Russia has but two inhabitants to a square mile, the whole of Africa but five; while cultivated Europe has sixty-six. Again, half-civilized countries, as Equador and Venezuela, though possessed of a fine climate, and much fine soil, have a population of but two inhabitants to the square mile; while cultivated Belgium has 323, Holland, 254, and Great Britain, including Ireland, 223. It is true that these last countries are much the eldest, but this makes but a small part of the difference.

A people who live almost entirely on flesh, as most barbarous nations do, require a larger territory, even when it is cultivated, to support the same population, than when the inhabitants live partly or largely on vegetables. The reason is, that vegetable food, when eaten by men, in the first instance, contains more nutriment than the same food converted into meat.

The fact, and its causes, that cultivated lands afford better raiment and shelter than uncultivated, is too obvious to need illustration. The savage hunter and fisher lives precariously, whether you regard his food, raiment or shelter.

2. *To Health.*—Man, and perhaps all animated beings, need exercise to promote health. The labors of the agriculturist, taken as they are in the free open air, under the light of the sun, under the impulsive desire of food and gain, become more healthful, on the whole, than any other species of labor. This is evident in the superior vigor and longevity of an agricultural population, in all ages and nations. It should not be forgotten, also, that the varied scenery, labors, and interest of such a population, do much to cultivate that mental vivacity and quiet on which good health is based.

3. *To Mental Development.*—"Mens sana in sano corpore,"—i. e., a sound mind in a sound body, is an adage as old as it is true. A brisk, equable circulation of the blood, firm muscles, and steady nerves, are as important to the vigor and health of the mind, as of the body.

4. *To Moral Improvement.*—Whatever gives health to the body promotes mental calmness; whatever familiarizes man with the works of God, removes him from large associations and exciting scenes, pleasantly and usefully occupies his time and thoughts, and maintains the family state—*that* is favorable to moral improvement. All this is embraced in the pursuits of the tiller of the soil. Seldom, among them, are we struck with the perpetration of dark crimes and high misdemeanors, or the exhibition of towering ambition and violent political animosities.

5. *To the cultivation of Social Sympathies.*—Such sympathies are the sweetest in life, and are the foundation of all that is interesting in the idea of home. When correctly cultivated, they form the highest degree of social harmony, comfort and improvement. Such results are no where so uniformly attained as in a rural population.

6. *Agriculture is the necessary calling of perhaps four-fifths of the population of every age and country.*—Food is the first want of man, the first object of wise and laborious pursuit. Except in

positions peculiarly favorable to commerce and manufactures, and the ready importation of bread, no community will embark largely in either of these pursuits, while a fertile soil and genial clime invite to agricultural pursuits. Many individuals too, in the fluctuations of business, or the pursuit of health, have recourse to it. An agricultural population is the main source, whence principally the *Mechanic* arts, the pursuits of *Merchandise* and *Commerce*, and the *learned professions*, draw fresh recruits to fill up the wasting ranks of each—a striking comment, alike on the sanitary influences of the one, and the destructive tendencies of the other.

In tracing out these relations I need not state them all, since, in a loose manner of speaking, every single science or calling is nearly or remotely related to every other. It is enough then, to state the more obvious of them. Nor is it needful here, that I should trace these relations with minute and scientific accuracy, as though writing a school book. It is enough to state a few obvious facts, leaving to books of science to fill up the blanks.

II. THE SCIENTIFIC RELATIONS OF AGRICULTURE.

1. *To Geometry.*—Whether the notion be true or false that this science rose in Egypt, among the farmers of the Nile, who, by its aid, revived the landmarks which the annual floods of that river had effaced, we need not stop to inquire. If it be a fable, it strikingly exhibits the impression of the ancients of the utility of this science to agriculture. In a new country, wild lands must be surveyed; and successive sales and subdivisions require resurveys in all lands.

Fields, also, need to be measured and laid out for the ordinary purposes of culture and embellishment. Some knowledge then, of the *rules*, if not of the *principles* of Geometry, are essential to the cultivator of the soil.

2. *To Botany.*—This science, whether contemplating the systematic arrangement of plants, or the mutual relations and uses of their parts, is intimately connected with agriculture. Indeed, some knowledge of this science is implied in the rudest condition of this pursuit. The habits, structure and qualities of plants, the soil and climate best adapted to them, the best mode of culture, and the power of that culture to change and improve them, are all questions in which the farmer is interested. He learns that the grasses, what are often termed English grains, and potatoes, require only moderate heat and light, combined with a due degree of moisture. So also of the apple, pear and plum. On the other hand, Indian corn, pumpkins, squashes, melons, tomatoes, cucumbers, and other tropical plants, require the highest degree of heat and light that our climate usually exhibits, with a less degree of moisture than the preceding class. The same remark applies to such fruits as peaches, grapes, apricots, and nectarines. Not less must the farmer understand the power of originating new plants by the union of old and nearly related varieties. But enough here on a topic that readily expands into volumes.

3. *To Medicine.*—The analysis of plants with reference to their qualities of nutrition, stimulation, &c., and of minerals constituting the natural or needful basis of all productive soils, naturally also developes their *medical* qualities. Hence it will be found, to a considerable extent, that the sciences of agriculture and medicine advance with equal pace.

4. *To Chemistry.*—This science teaches us that the whole material world with which we are acquainted, is made up of varied combinations of from 56 to 60 simple substances; and that about 12 or more of these enter, more or less commonly, into the constitution of those vegetables with which the farmer is acquainted, as well as into the constitution of all those animals which feed on those plants; that what thus is found in the animal and the plant must previously have existed in the soil, and thus should be considered a necessary constituent of all soils adapted to the growth of such vegetables.

The bulk of all vegetable matter is composed of three elements, carbon, oxygen, hydrogen—in short charcoal and water, to which is occasionally added a little nitrogen. Combined with these, but usually in comparatively small proportions, are phosphorus, sulphur, iron, silica, potash, lime, allumina, manganese, and, it may be, a few others. Some of these last, as phosphorus, potash, silex and lime, are indispensible to almost every plant, sometimes to the herbage, at others to the seed, and often to both. Other mineral substances may be present in a soil, and, either intrinsically, or by the degree in which they exist, may prove poisonous to vegetation; such are lead, arsenic, some forms of iron, magnesia, copper, &c.

Chemistry will teach the farmer the influence of heat in the production of the peculiar secretions of tropical plants, and hence the relation between a hot and dry summer, and their valuable qualities. The effect of electricity, also, although not yet very well defined, will be referred to this same science. So also, the system of manuring, as intended to add to the soil, substances indispensible to the growth of plants, but absent from that soil, or present in too small a proportion, is explicable only by the science of chemistry. The philosophy of plowing, as tending to break up the soil, and bring its minute particles into an available condition, as well as to open it to the influences of heat, light and moisture, is also chemical. The germination of the seed in the soil, the growth of the plant, and the maturity of the seed or fruit, are all processes which are purely chemical.

But the full illustration of this branch of the subject, as in the parallel case of Botany, would be the work of volumes.

5. *To Mineralogy and Geology.*—All the mineral elements of plants being derived from the soil, it becomes a question of importance to ascertain their condition in that soil, and also their source. Mineralogy teaches us the rocky origin of all such elements; and investigates their state of combination with other, and often useless or noxious substances; and also the mode of their development, by the natural agencies of water, frost and chemical changes, or by such artificial means as science may indicate. This science further developes the existence of some mineral elements, such as some of the forms of lime and phosphorus, that are the remains of a former condition of the world, when animated by a very different class of animals from those that now inhabit it. Hence, to a great degree, the mineralogical structure of a soil, settles the question of its adaptation and fertility. Soils, especially rich in phosphorus, lime, potash, and allumina, may often be cropped for a long time with little regard to alternation or stint.

Again, as all minerals are originally derived from those vast rocky layers of which the earth was once constituted, so the geological indications of any country will go far towards settling the character of all those surrounding soils that were constituted by their disintegration.

6. *To Astronomy.*—The sun is the great and obvious source of both *light* and *heat* to the world.

The seasons of the year and the progress of ve-

getation depend on the degree of these indispensible stimulants. The general angle of incidence, with which light strikes the earth, settles the question of climate, in all its gradations, from tropical to polar. Ignorance and superstition have attributed important influences on the weather and the seasons, as well as on other human interests, to the moon, stars, and signs of the zodiac. But science does not confirm these opinions, but shows them to be baseless and harmful.

7. *To Zoology.*—With one class of animals, the farmer is concerned for the purposes of draught, food and clothing. They are the horse, cow, swine, sheep, goat, goose, hen, silkworm, &c.

With another class he associates an interest, as they are his auxiliaries in repelling the depredations of others that are noxious. They are such as the dog, the cat, various sorts of birds, and some classes of insects.

A third class, mostly birds and insects, are familiar to him as destructive to the interests of the field crop, the garden and the orchard.

With the forms, habits, &c., of each, the cultivator should be acquainted, that he may know how to avail himself of the aid of the useful, as well as to repel the encroachments of the mischievous.

An enlightened and discriminating view of this subject has corrected many popular errors. Many animals, once considered useless, and perhaps repulsive in form and habits, are now found to be peaceful and important auxiliaries to the gardener and farmer. Thus the toad, so unshapely to the eye, and once thought worthy to be a sort of personation of the evil one, is now known, not only to be not poisonous, but eminently destructive of innumerable insects. So also, many birds, once hunted with avidity, on account of an occasional injury to the field or garden, are now ascertained to accomplish a large balance of good.

8. *To Mechanics.*—The farmer needs carriages, various tools, especially for cultivation and seed sowing, reaping, excavation, &c.

In the construction of these, reference should be had to the persons using them, and the quality of the soil to be cultivated, and the facility with which they may be used, and their durability. In nothing does the enlightened agriculture of some nations appear more than in the wisdom of their machinery.

9. *To Commerce.*—The supply of agricultural productions, in an enlightened community in a genial clime and upon a fertile soil, will be limited only by the demand. This demand will depend on a well regulated commerce. A surplus of productions will itself be likely to originate commercial enterprises and regulations. Hence will result a wise appropriation of the soil in any country, guided by its natural powers, and the foreign demand.

10. *To Artistic Skill.*—Suppose the farmer to be instructed intellectually in all the facts and sciences of his calling, he yet needs wisdom to concentrate all upon his appropriate labors, that they may be performed with appropriate skill, at the proper time, and result ordinarily in abundant and cheap productions, appropriate to the soil and the demands of commerce. Such results will ordinarily follow only where the cultivator has passed through a leisure apprenticeship of principles and manipulations; the one acquired in the field, the other in the study or the schools, and both pursued with a just appreciation of the utility and dignity of agriculture.

OBSERVATIONS.

Let the Farmer seek higher qualifications.—Perhaps some, after contemplating the preceding outline of relations, may be disposed to say that "such and such persons, in the past and present generation, *have been* and *are* good farmers, without all this parade of education." I answer, that in proportion to their skill and success, they had, at least practically, some of the advantages of such an education, advantages gradually acquired from experience, observation and reading. And who shall say how much more successful they might have been under higher advantages from these sources. Again, is it not painfully evident that the want of knowledge and skill are a great drawback on the profitableness of much of the farming of the present day? How much loss results from the want of well-constructed tools, unwise plowing, ignorance of the proper rotation of crops, the just adaptation of crops to particular soils, badly selected flocks and herds, waste of food in fattening animals, bad selections of fruits, &c. Now much of this loss would be prevented by a wise agricultural education, the cost of which, to a young man, would not be equal to the loss of a single year, arising from the mismanagement of his farm.

Another reader of these observations, who admits them in all their force, will exclaim, "how am I, a poor youth, ever to become a farmer if such be the needful qualifications?" Here you point out ten scientific relations of agriculture, each one of which would require at least a year of hard study in the attainment of its rudiments, a thing for which ninety-nine in the hundred of young men have neither money nor time." I answer, there are various stages in the path of improvement. Many a young man, who cannot get a collegiate education, nor spend two or three years at an agricultural school, may yet spend a year or two with some farmer of enlightened mind, and improved modes of culture. And if a poor young man cannot do even that, the simple fact, that his mind is awakened to a knowledge of his own ignorance, and the existence of sources of light, will have the effect to arouse all his powers of attainment, so that his eye, his ear, and his mouth, are all henceforth to be opened in the eager pursuit of appropriate knowledge. The spell of traditionary usage is broken, and he at once thrown into the path of certain, though it may be slow, improvement. Henceforth, he will seek new books appropriate to his calling; he will watch experiments in his own labors, and those of his neighbors. Thus, by the time he reaches middle age, he will have made the most desirable attainments in his calling. Others, meanwhile, with more means and higher advantages, will have become fitted to be *Professors* in the science of agriculture.

Society will thus, on this subject, present a beautiful climax of attainment, from the first lessons and labors of the ardent youth to the sublime theories, and startling results, of the doctors of agricultural philosophy. Thus, the science of Agriculture, so fundamental to all the interests of human society, and so intimately related to almost all the other sciences, will no longer bear the reproach of being conducted by machines as mindless as the patient ox or "iron horse" that impels his heavy machinery, but the agriculturist will be classed among the most enlightened students of the works of God, and be worthy to be considered the firmest pillar in the church and the state.

At the same time the equipoise between rural and literary pursuits will be maintained, and men will no longer forsake the plow emulous of fame in the supposed elevated paths of science.

2. *Let the Farmer feel an established conviction of the Dignity of his calling.*—That calling is first in historic origin, first in necessity, first in comfort,

first in varied qualifications when wisely pursued; and shall the laborer in the field look on his hard hand, brown skin, and well developed muscles—his plain, strong, but comfortable clothing, and dwelling, and equipage, as signs of inferiority and meanness? His is health, strength, contentment and independence; his is a central and fundamental position in society, and shall he cower? The humble and learned divine, the skillful and humane physician, the acute but honest lawyer, the enlightened teacher of science, the keen but honorable merchant, and skillful mechanic, are all honorable men, whose virtues and agencies are indispensible to the best good of society; and so are their wives, their sons, and their daughters, honorable; but not exclusively so; nor in a higher degree than the farmer who honors his calling. If the tiller of the soil has heretofore enjoyed less honor than the indispensibleness of his calling naturally accorded him, it was because he brought fewer of the lights of science to bear on his toils than naturally clustered around them.

Now, that science is simplified and made accessible to all; let the farmer concentrate its rays upon the dark bosom of the earth until it is radiant with the light of philosophy, while it fills his "basket" and his "store" with its rich and varied productions, and teaches him the wisdom, power and grace of God. C. E. G. *Utica, N. Y.*

The Veterinary Department.

Bone Disorder in Cows.

It has often been mentioned that in some parts of Europe, where land has been long pastured by milch cows, the animals are subject to a weakness of the bones, a disease which has been attributed to the exhaustion of the phosphate of lime in the soil. We have also mentioned that in the older settled parts of our own country, the same disease had made its appearance. The application of bones as manure to the soil, or the phosphate of lime as it is found in some rocks, has been found to restore the necessary quality in the grass, and the animals become healthy. It appears, also, that "bone meal" has been given to the cows with good success.

Mr. Wm. R. Putnam of North Danvers, Mass., gives some valuable ideas on this subject, in a communication to the *N. E. Farmer*. He says—"In a former communication I attempted to show that there was such a disease, caused by the want of proper food. It will be my object, at this time, to show why it may exist in some sections of the country, and not in others. Those farmers, in this town, whose cows have been affected by it, have not been in the habit of raising stock, but they have sold their calves to the butcher. The farmer who keeps ten cows, usually sells annually eight calves. These at five weeks old, will weigh one hundred and twenty-five pounds each. Where this course has been pursued for fifty years, there have been taken from the soil twenty-five tons of animal matter, and but small return made to it by the manure voided by calves at this age. Now it will be obvious to every one that this will sooner exhaust the animal matter from the soil, than where they raise stock; for the ox that is kept until he weighs as much as the eight calves, will have voided a larger amount of manure.

"It is the practice of most farmers here, to purchase heifers that are driven from New-Hampshire, Maine, and Vermont, in the autumn, before they are three years old, which are expected to calve in the spring. This is a time when they will require the largest amount of animal matter to promote their own growth, and furnish nutriment for their offspring. It is these young cows that are most likely to be affected by this disease. On Mr. Preston's farm, alluded to in my last communication, for fifteen years before they began to use bone-meal, they were not able to keep any of these until they were six years old. They became so stiff and feeble that they were obliged to dry them. Many of them were driven to New-Hampshire to a pasture that has always been used for fattening cattle. There they fatted as well as cows that had never been diseased.

"I will give my reason why I think this disease has not shown itself any more in Hamilton; yet I think I have seen some signs of it there. When I see the boards about the cow-yard look as if the cows had been trying to eat them up, it is a sure sign of one form of this disease. The farmers in that town are in the habit of using a considerable quantity of hay from the salt marshes of Ipswich and Essex. I have never seen any analysis of this grass; but, from the large quantity of lime in the shells of clams and muscles, found about these marshes, the inference is that it contains a large amount of phosphate of lime.

"The pastures there may be as much exhausted of animal matter as here; yet if the cow has had a full supply of it during the winter, she will be able to go through the summer without showing the want of it. It is the opinion of some there, that the manure made from salt hay is better than that made when the cattle are fed upon English hay. The inference from this is, that it furnishes something to the soil, which the other does not. It is the practice of many there to keep a portion of their best salt hay until the time the cows go to pasture. They will often eat it then, when they will not eat the best of English hay.

"It may not be, that those farms which have been cultivated the longest are most exhausted of animal matter. It depends more upon the manner of cultivation than upon the time. Perhaps we may apply the same principle to feeding milch cows, that we act upon in feeding hens. When we see them trying to eat the lime from the walls of their coop, we think they need it to form the shell of their eggs, and we give it to them in oyster-shells, old mortar, and bones. So when we see a cow trying to eat old bones, we should think that she needs something of this sort to furnish milk.

"In Dr. Dana's *Muck Manual*, it is stated that the liquid evacuation of the cow contains a considerable quantity of phosphate of lime. When no attention is paid to preserving this, and the solid excrements are exposed to the air, the most volatile and valuable parts are lost. From this we may infer that where there is a barn cellar for preserving the manure, the cows will not be so likely to have this disease, and experience will warrant the conclusion. It is there stated, also, that peat ashes abound in phosphate of lime. By carting muck to our barn-cellars, to be wet by the urine of the cows, we not only increase our manure, but it will abound in that particular ingredient which the soil needs to produce proper food for milch cows."

Blind Teeth in Horses.

Eds. Cultivator—In confirmation of Mr. Little's statement in the February number of *The Cultivator*, concerning wolf or blind teeth in horses, I would add, that in the fall of 1849, I purchased a horse five years old. When delivered to me, after a long journey, I discovered a dullness of the eyes,

accompanied with a slight weeping or running. Upon examination, the wolf-teeth were found in front of the grinders. The horse's eyes continued to grow worse until I had the wolf-teeth drawn.—Immediately after, the eyes improved, and soon became bright and perfectly sound, and still continue so. E. *Bridgton, N. J., Feb.* 23, 1850.

The Horticultural Department.

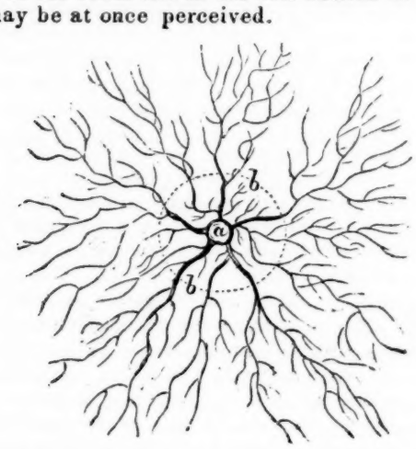
CONDUCTED BY J. J. THOMAS.

Transplanting.

Much has been said on this very important art of altering the locality of a growing tree; but while so many trees are lost, and a still larger number stopped in growth by the operation, the subject cannot be regarded as done with.

All the different parts of this work, come under one general requisite for success—which is, *to take the tree up and set it out again just as it previously stood*, with as little violence to the different parts as practicable.

1. *One of the most obvious points, is to take up the roots as nearly whole or uninjured as may be done.* Instead of cutting off the roots close to the tree, the spade must be set far back from it; and if the tree be of such sort as has tough roots, it should be *slowly drawn* up by the strength of two or three men; but if the roots are tender, the tree must be *lifted* out, earth and all, and the earth removed afterwards by shaking. The roots of a young tree usually extend in a circle equal in breadth to its height. In the annexed figure, where *a* is the trunk of the tree, *b b* the circle of roots cut off by the spade in a hasty or careless removal, the great majority of the roots left in the soil outside of this circle, may be at once perceived.



But as about one-half of the roots must be cut off, even in a careful lifting of a good sized tree, the top must be lightened with the knife in a corresponding proportion. From apple trees, one half of last year's shoots should be cut off, and two-thirds or three-quarters from peach trees. If the head is too compact, this proportion of the shoots may be cut entirely out; but if the head is thin, one-half to three-quarters of *each shoot* may be cut. So great is the advantage of thus rendering the top lighter, that no person who has once given it a fair trial, can easily be induced ever to omit it.

2. *A second very essential requisite, is to keep the roots moist while out of the ground.* For this reason it is very useful to plunge them in a bed of soft mud, made on purpose, which coats over the roots and preserves the moisture for a long time on their surface, until they can be again set in earth, or packed in wet moss for sending long distances. Trees received from a nursery should always be *immediately* buried at the roots in mellow soil, so that one by one can be taken out fresh and moist as wanted.

Careless operators often take up trees and suffer them to remain more or less dried for whole days together; all the smaller fibres are thus killed, and the erroneous notion has hence arisen, that the smaller fibres are of no value.

3. *A third requisite is to replace the earth compactly among the roots, leaving no interstices.* If the earth is hastily and carelessly thrown in, vacancies will be left beneath the tree, which will cause great injury, if not death. To do the work well, the earth must be fine, and gradually sifted in from the shovel, spreading out all the roots with the fingers as the work proceeds. Dashing in a few quarts of water before the hole is filled, settles the earth well against all the roots, the surrounding earth soon absorbing the superabundant moisture, and leaving the tree firm. This close contact of soil, it will be observed, is assisted by the mudding of the roots, already described.

There are several other points of minor importance, or occasionally very necessary, as paring off all bruised parts of the roots before re-setting; staking up the stem or throwing a bank of earth up around it, to prevent shaking about by the wind; avoiding a water-soaked soil; planting no deeper than the tree stood before,—or even placing the tree on the surface, and embanking upon it, if the soil be wet; and keeping the *stem* and *branches* moist, but not watering the roots, if the tree is too much dried, till the leaves appear.

The subsequent success and vigorous growth of the tree, depend on *three requisites*. 1. First and most important, is a fertile soil. This may be secured for the tree while young, by digging large holes, and filling them (except in immediate contact with the roots) with very rich soil, or with short manure well mixed with soil. Young apple trees, as large as a riding stick, with holes seven feet in diameter thus filled, have borne a bushel of fruit each the *fifth summer*. By the time the roots have run between these holes, the rest of the ground may have been enriched and deepened by manuring and plowing. 2. A second requisite, scarcely less essential, and indeed often more so with peach and some other trees, is to keep the soil *mellow and clean* at all times of the season. Even a crop of potatoes or ruta bagas lessen the growth of the trees, although *immeasurably* less so than sown crops or grass. 3. A third requisite is *mulching* during dry seasons. This consists merely in covering the ground 6 inches thick with litter, leaves, or similar substances, for *several feet* each way round the tree, during the hot and dry part of the year. It obviates watering, and assists to an almost incredible degree, the growth of the tree

Street Shade Trees.

We would briefly remind those who can feel the difference between bare lines of buildings, and dry, glaring, and dusty streets, on the one hand,—and the softness, luxuriance, the interminable beauty of masses of green foliage, and the refreshing shade of our finest forest trees planted in villages and by road-sides, on the other,—we would remind these that the time has now come for action—no delay must be made, if another whole year is too valuable to be lost.

Most of the directions, given in the preceding article on transplanting fruit trees, are equally applicable to shade trees. But there is one all essential part of the work, without which failure is about as certain as the course of water down hill, and that is, the trees after being set out must be carefully protected from the rubbing of street animals. We have seen trees five inches through, which had been moved with nearly a ton of earth on the roots, all destroyed the second year by the rubbing of pigs and cattle. The best, most substantial, and most durable protection, consists of three posts in the form of an equilateral triangle, enclosing the tree, with horizontal cross pieces, or boards securely nailed to the posts. This frame will besides prevent those, who think a tree is a very handy object to hitch a horse to, from spoiling it by allowing the horse to gnaw the bark. "You will be exceedingly vexed," says a late writer, in allusion to such a disaster, "but will be *consoled* by the assurance that the owner never knew his horse to do so before—and you will wish him and his horse at —— the end of their journey!"

A few brief directions for planting shade trees, may be summed up as follows:—

1. Dig the hole before the tree is taken up, for being large, its roots cannot be so easily protected from dying as a smaller tree, and it should therefore be out of the ground as short a period as possible.

2. If the trees are two to three inches in diameter, the holes must not be less than six feet in diameter, and a foot and a-half deep, and the roots of the tree taken up, of nearly corresponding size.

3. Cut round the tree two and a-half or three feet from the stem, and lift it out without tearing the roots or bruising the stem—not after the recommendation published some years ago, as a *very careful* mode of removing, "cutting the roots with an axe, and dragging the trees out with a yoke of oxen."

4. Cut off or thin out one-half or three-fourths of the top, having an eye to the future shape of the tree. This lessens the number of leaves, the draught is less severe on the roots, the fewer shoots grow more rapidly and the wind has less power on the tree.

5. Plant the tree no deeper than before; as some one quaintly remarks, "nature has attended to the growing of trees some six thousand years, and cannot in this particular be improved upon."

6. As soon as the tree is set, then immediately erect the tripod-protection, already described.

7. Cover the ground several inches deep with litter, in a circle six feet in diameter. The soil cannot be easily cultivated, and this mulching is the best substitute.

Trees treated according to these rules, will begin to grow immediately, and will form handsome, rich, dense masses of foliage, in less time than those which are carelessly torn from the earth and hastily planted like a fence-post, can recover from the violence which they have received. It is better to plant ten trees well, than twenty or thirty badly.

Trees which have grown in the open ground are hardier and far better than those taken from the forest. Thick woods afford almost the protection of a green house; and trees removed from them and set out in open air often perish solely in consequence of their tenderness. Those from borders of swamps are often better than those from upland, the soft mucky soil more perfectly admitting the entire removal of the roots. The dissimilarity of soil where they are placed, rarely proves of any detriment. As a general rule, such trees have succeeded much the best with us. This is also, particularly the case with *evergreens*, which always need a large *cake* of earth to be removed entire upon the roots. This cake should always be large enough to hold the tree stiff against the wind without any staking. *When this has been done, we have never lost a single evergreen tree by transplanting.* In the borders of swamps, where the muck is shallow on a hard-pan, the roots of evergreen trees usually form a thick mat of roots, all near the surface; cutting round one with a spade, allows the tree to be taken up with great ease, the whole mass of the roots and muck *peeling* readily off from the hard-pan.

Inquiries Answered.

AGE OF TRANSPLANTED PEACH TREES.

"Will Peach Trees, one year from the bud, bear as soon as those two years from the bud?" *A. P. Clarkson, N. Y.*

According to the experiments we have made, peach trees of the usual size at two years, well treated, will come into bearing decidedly sooner than one-year trees. Such trees need the shortening-in process, as an indispensible requisite to complete success, at the time they are set out. Treated in the best manner, and with the ground kept clear and mellow afterwards, such trees not unfrequently produce from two to three pecks of fruit the third summer.

SHORTENING-IN CHERRIES.

"Will it be a good plan to shorten-in my young cherry trees, which have become rather top-heavy by their vigorous growth, some shoots having made two and a-half feet the past season?" *J. T. Rome, N. Y.*

No harm can result in cutting back the young shoots, to render the tree less top-heavy; but, unless the head is quite thinly formed, it may be advisable wherever a cut is made, to take off the entire shoot, which would in such case give the head a neater and cleaner appearance. It scarcely ever becomes necessary to prune the head of a cherry tree to let in the light, which is so essential for the peach.

ROOT GRAFTING.

"In root-grafting, how long must the scion be, and how far above ground when set out—must the ground be packed around it? Is paper as good as muslin for the plasters?" *D. D. D. Ilion, N. Y.*

The graft should be about three or four inches long, and the tip must be just even with the surface of the ground, which prevents the danger of its becoming too much dried. The earth should be closely packed around it for the same purpose. More care, however, is usually needed in packing well about the root below, careless workmen usually leaving interstices. A deep, inverted sod, where the soil is sufficiently fertile, is much better for setting out root-grafts than other ground, being attended with fewer losses. Muslin is better than paper, as usually applied;—but if thin, tough paper is selected, and the wax applied copiously, it is fully equal to muslin.

GRAFTING WAX.

"I notice in the *American Fruit Culturist*, that a *cheap* grafting wax is recommended composed of 6 parts of beeswax, 1 of rosin and 1 of linseed oil. As beeswax is rather high priced, is there not some mistake in this?" *P. Ontario Co. N. Y.*

This mistake escaped correction in consequence of the distance of the author from the printing office. It should be 6 parts of rosin, 1 of beeswax, and 1 of oil.

MARKET APPLES.

"Do you think the Tewksbury Blush would be profitable planted largely for shipping? What is the quality of the Northern Spy as compared with Rawle's Jannet? The latter is a general favorite here." *H. A. Burlington, Iowa.*

The Tewksbury Blush is valuable for being a very productive apple, and a long keeper—but it is not of the highest quality, and is too small to become extensively popular. It is hard as yet to compare the Northern Spy with Rawle's Jannet. The Jannet has been but little proved side by side with the Spy, the former having scarcely ever fruited in New-York, (where the seasons are probably too short for it,) and the latter having never fruited at the west. It is absolutely essential to test every thing of the sort by actual trial. The Spy comes slowly into bearing, which is the chief reason its adaptation to Western New-York has not been ascertained. It is a more showy apple than the Jannet.

DISTANCE OF PEACH TREES.

"Will peach trees set *ten* feet apart, do as well as at *twelve* feet?" *A. P.*

Peach trees which are not shortened-in, require a distance of twenty feet; but by keeping the heads compact, they will not interfere with each other at twelve feet distance. Ten feet would be rather too close planting. By planting near, we get a greater number of trees to an acre, and consequently a larger crop of peaches from an acre. A distance of 12 feet will allow three hundred trees per acre; twenty feet only a little more than one hundred. The ground should be well cultivated in any case, and the nearer distance thus becomes the more economical. The more numerous the trees, however, the more rapidly the soil is exhausted. Hence, heavier manuring becomes requisite.

The objection that the trees are kept too small by shortening-in the heads, is not valid, because the large unpruned heads only bear fruit at the ends of the branches.

Productive Strawberries.

A correspondent of the *Michigan Farmer*, who has raised 30 bushels of strawberries on one-third of an acre, has been most successful with Large Early Scarlet, Hovey's Seedling, Boston Pine, and Hudson's Bay. The Large Early Scarlet produces double the fruit of any other sort, continuing a month. Hovey's Seedling yields a fair crop, and much larger fruit than any other, having obtained single specimens measuring 4¾ inches in circumference.

The land is trenched 18 inches or 2 feet deep, and enriched with a mixture of well-rotted manure and mould from the woods—the rows are 2 feet apart, and every third year, the runners are allowed to occupy the ground between them, and the old rows are spaded in.

Large Crop of Water Melons.

Late in May I turned over a piece of green sward that had been in grass for mowing until it was run out. On the 30th of May, 1849, I planted upon a portion of it one hundred hills of water melons, without any manure, the surface having been slightly mellowed by the harrow. They grew very slowly during the six weeks drouth that occurred between June 28th and August 9th, during which they were hoed three times, watered frequently with fresh water, and twice with soap suds. After the August rains, they grew with great rapidity. I gathered in September, (beginning on the 7th, fifteen weeks from planting,) six hundred and fifteen melons, besides which, numbers that were rotten or very small, were not counted. About one-fifth of the whole crop were decayed at the heart, a consequence, I suppose, of sudden chills, a liability which is the main cause of disease in all the tropical plants which we cultivate. The quality of these melons was very fine, but the sale was bad, partly from the lateness of the crop, and partly from the lingering fear of the cholera. They were mostly from about eight to sixteen pounds weight, though many were heavier. Another plat of water melons, forwarded in hot beds, and set in richer soil, were much larger and earlier, but not better than these. The varieties I cultivated were—the *Black Spanish*, the *Carolina Green*, the *White Cored*, and *Imperial*.

A long hot season is indispensible for water melons, especially if raised in open culture. This we had this year. The other main favorable circumstance was the fresh green sward.

TEST OF THE RIPENESS OF A WATER MELON.—A water melon that has just attained its full growth is solid, and heavier than the same melon when fit for the table. Its subsequent maturity consists *first* in a *chemical* change of its juices to a luscious sweetness, and *secondly* in a *mechanical* change, i. e., a drying out of the centre so that the melon becomes hollow. This last change does not take place when the fruit is picked prematurely, or when it ripens late.

We are now prepared to understand the test of maturity. If the melon be moderately pressed between the hands, or better between the hands and knees, it will, if ripe, yield a slight cracking sensation, both to the feeling and the ear. This is in consequence of the yielding of the hollow sides to the pressure. Although an experienced eye can judge, with some degree of correctness, of the condition of a water melon, I know of no *certain test* but the foregoing. C. E. G. *Utica.*

Early Vegetables.

Hardy vegetables may be planted as early in April as the ground will answer to work. Radishes, lettuce, cabbages, turneps, potatoes, peas, &c., for early use, may be planted on warm soils almost as soon as the frost is out. If very severe cold occurs after the plants are up, some straw or hemlock boughs may be spread over them, which will be a sufficient protection, and may be readily removed when no longer wanted.

The best early varieties of peas are the Prince Albert, Early Kent, Early June (or Washington,) and the Cedo Nulli. The latter is a dwarf variety, requiring but little space, is prolific, and comes to maturity in about as short a time as the Prince Albert. The Early Kent is very popular in this neighborhood, where it has been raised for a few seasons. A good mode of raising early peas was described in our last volume, page 93.

A good mode of raising early potatoes is to sprout the tubers in warm horse-dung. They may be placed in layers with the manure, either on the ground or in a box or crate. If the potatoes, when packed for sprouting, are laid on small pieces of tough sods, the grass side downwards, they may be planted with the sods, without breaking the sprouts or roots, which will greatly facilitate their growth. They should not be started too much before planting, as it is difficult to prevent the sprouts from being bruised or injured, if they are much more than an inch long. If planted very early, they should be

put on a warm and rather dry soil, to avoid the liability of their rotting, if the weather is moist and cool.

There are several kinds of early potatoes, but no one kind has a universal preference. There is much confusion in regard to the names of varieties. Sometimes several varieties are confounded under one name; but a more common difficulty is the attachment of several names to one variety. There are several kinds, differing considerably in appearance and quality, which pass under the name of Early June. Some are round, others oblong; some yellow inside, others white. A kind introduced from England, and there known as Shaw's Early or Early Shaws, is here variously called by those names, as well as Early June, Mountain June, Fort potato, &c. The true sort is white, both inside and out, roundish in form, tending to become oblong on rich soil, or when it reaches an unusual size. It is one of the best kinds within our acquaintance. There are but few earlier kinds, and those few are poor yielders, and not superior to the Shaws in quality. They frequently grow to a size fit for eating, in eight weeks from the time of planting. When cooked before they are ripe, or while growing, their quality is superior to most kinds in the same stage. They are hardy, yield well, and keep well.

Twenty-five Hardy Shrubs.

Frequent inquiries are made by those but little acquainted with ornamental shrubs, for the names of some of the most desirable and ornamental as well as the most hardy species. Among the hundreds which are offered for sale in nurseries, the following list has been given by A. J. Downing, and may be of service to those now about to commence the improvement of their homes by ornamental planting:—

The most desirable 25 hardy deciduous shrubs, furnishing a succession of flowers or ornamental fruit from March to November:

Pink Mezereon,
Japan Quince, white and scarlet,
Dwarf double-flowering Almond,
Double purple Tree Pæony,
White Persian Lilac,
Chinese White Magnolia,
Soulange's Magnolia,
Sweet-scented Magnolia, (M. glauca,)
White Fringe-Tree,
Garland Deutzia, (*D. scabra,*)
Large-flowered Syringo,
Broad-leaved Laburnum,
Rose Acacia,
Tartarian Tree-honeysuckle, red and white,
Double white Hawthorn,
Double pink Hawthorn,
Sweet Scented Shrub,
Dwarf White Horsechestnut,
Fragrant Clethra,
Oak-leaved Hydrangea,
Venetian Sumac (or Purple Fringe,)
Purple Burning Bush, (*Euonymus,*)
Buffalo Berry.

To the preceding might be added, as superior to some of them, the Siberian Lilac, the Althea or Hibiscus syriacus, and, although so common, the Snowball. Nor should some of the Roses be forgotten.

The following are given as some of the *finest hardy climbing shrubs*:—

Large-flowering trumpet creeper, [rather tender,] Queen of the Prairies Rose, Chinese Wistaria, Sweet-scented Clematis, Double purple Clematis, Monthly Fragrant Honeysuckle, Chinese Twining Honeysuckle, Yellow Trumpet Honeysuckle. [To which the Scarlet Trumpet Honeysuckle should by all means be added.]

Horticuitural Miscellanies.

Mostly copied or condensed from the Proceedings of the North American Pomological Convention, 1849.

CLIMATE OF ILLINOIS.—In northern Illinois, the winters are often very severe, the thermometer sinking to 20 degrees below zero; while in the southern part of the State, the cotton plant matures a partial crop, and the indigenous cane, though dwarfish, survives the winter.

APPLES OF NORTHERN ILLINOIS.—Dr. Kennicott gives in substance the following:—

Yellow Harvest—large, usually fair, excellent—young trees shy bearers.

Keswick Codlin—not over good; the most early, uniform and enormous bearer.

Rambo—receives the most praise further south.

Oslin, Newtown Pippin, Roxbury Russet,—"miserably unproductive here."

Rhode Island Greening—shy bearer—also cracking at the collar of the nursery tree.

Rawle's Jannett—all speak highly of this for Illinois.

Limber Twig—highly commended in southern Illinois.

White and *Yellow Bellflower*—"perfectly at home on our rich prairie soil."

Carthouse or Red Romanite—one of the most profitable market varieties, from one end of the Mississippi to the other.

English or Poughkeepsie Russet—has produced the largest crops of all keeping apples,—six bushels having been produced on one tree the sixth year from planting out. The same was obtained from a Keswick Codlin. In planting, the holes were five feet across, 18 inches deep, the soil mixed with a little manure, good cultivation given, and the stems washed with soap-suds.

Fulton Apple—an Illinois seedling,—the original tree being 19 years old, a foot in diameter, 25 feet high, and 28 across the top.

STRAWBERRIES FOR MARKET.—F. R. Elliott, of Cleveland, Ohio, states the following experiment:

Upon one-fourth of an acre, light loamy sand, rather poor, not highly manured, planted in 1846, the variety known as Willey, in rows 2 feet apart, and plants one foot in the row.

In 1847, 1345 quarts from this, sold for $145 in market.

In 1848, 615 quarts sold for $63.35. These were both exclusive of those used in a family of twelve persons.

Estimate of cost:—

Use of ¼ acre of land for 3 years,		$6 00
Planting and hoeing first year,		4 00
do do second year,		3 00
do do third year,		3 00
Gathering first year,		20 00
do second year,		12 00
		$48 00
Receipts, first year, cash,	$140 00	
do second year, cash,	63 35	
do say for family use,	10 00	
		$213 35
Nett profit,		$165 35

[The Willey as a very productive variety, thought to be about equally so with Dundee and Burr's old Seedling.]

PEACHES IN ILLINOIS.—Dr. Kennicott (19 miles from Chicago) says that fine varieties sell for $1.-50 to $2.50 at the orchard, and $3.50 to $4.00 taken to market. One man some 30 miles west of Chicago, sold $2,000 worth of peaches in 1847 from one orchard.

The trees bear young—sometimes the second year—often the third—but usuallly die in 6 or 7 years.

GRAPE CUTTINGS.—The *Mich. Farmer* states that Elijah Buck, a successful cultivator, has met with uniform failure in raising grapes from cuttings in the usual way of placing them nearly perpendicular or obliquely in the soil, not one in ten thus treated ever showing signs of growth. A different mode was afterwards adopted, by placing the cutting horizontally just beneath the surface. Not one in fifty failed.

HARDY GRAPES IN MAINE.—Alex. Johnston, of Wiscasset, states in *Hovey's Magazine*, that the Isabella is the only variety of American grapes that will succeed in that severe climate. Even that requires ample protection in winter. One vine, three and a-half inches in diameter at the ground, and which had borne finely, had been killed by leaving it exposed. The Catawba is unfitted for that region.

TRANSPLANTING LARGE TREES WITH BALLS.—The same correspondent describes a mode of removing large evergreen trees with frozen balls of earth, requiring far less labor than the usual way of cutting round them through the hard frozen ground. The ground at the roots is covered in winter a foot deep with evergreen boughs, which keep it from thawing so soon in the spring, as the surrounding earth. The tree is then easily removed, roots, frost and all.

APPLE TREES IN ILLINOIS.—The fertile soil, hot summers, and severe winters of a large portion of the western states, render the culture of some kinds of fruit more difficult than at the east. It appears to be well established that apple trees budded and grafted on strong, full sized, entire roots, are more hardy than those raised by root-grafting as commonly practiced. Prof. Turner, of Illinois College, states in the Horticulturist, that 60 *root-grafted trees*, 100 *grafted on full seedling roots*, and 60 *budded near the ground*, were transplanted under precisely similar circumstances in similar soil. In the following year, only *six* root-grafted trees were alive; on the other hand, all the budded trees but six were living, as well as all the trees grafted on whole seedling roots.

NEW NAMES TO OLD FRUITS.—The long time required to prove the correctness of a fruit by coming into bearing, renders the public peculiarly liable to imposition from venders. Every year exposes some great humbug. For some years past, a grape has been sold very extensively, at a guinea a plant, under the name of *Josling's St. Albans*. Robert Thompson, the greatest English pomologist, highly commended it. Josling is said to have obtained by its sale more than ten thousand dollars. It is now found to be an old sort, long known as the Chasselas Musque, or Musk Chasselas.

WINTER PEARS.—Hovey says, "our correspondent, Mr. Washburn, of Plymouth, informs us that he has just sold the last of his *Easter Beurre* pears, the produce of one dwarf tree. They brought him the handsome sum of twenty dollars; and less than a bushel of fruit. He finds no difficulty whatever in ripening the pears; his practice is to let the fruit hang on the tree as late as possible, even after two or three frosts, if they are not likely to be very severe. Each pear is wrapped in double papers, and kept at an even temperature in a cool room, until wanted for use; they are then brought into a warmer temperature, where in the course of a fortnight they begin to change color, and soon become fit for cooking. In this way they may be ripened off in succession from the middle of December to the middle of March."

MANURE FOR FRUIT TREES.—The *Horticulturist* recommends, as one of the best manures for fruit trees, &c., the following:—Pour *brine*, (*old* brine is as good as any) on fresh lime till slaked to a powder. Then make a heap of the fallen leaves of the trees, by sprinkling over every layer of leaves a portion of this compound of lime and salt, at the rate of four bushels to a cord of leaves. In a few weeks it will be ready for use. The proportion of salt to the lime is about as one to four. *Grape* leaves, thus treated, are recommended as best for grapes; peach leaves for peach trees, &c.

RIPENING OF APPLES AT THE SOUTH.—The following statement of E. J. Capell, of Centreville, Miss., in the *Horticulturist*, shows the wide difference between the periods of the ripening of apples in the northern states and at the south:—

"Early Harvest—1st of July."
"Bevan—early summer."
"Holland Pippin—July and August."
"Maiden's Blush—ripens in August."
"Golden Russet—ripens in September."

The preceding appear to be well adapted to the soil and climate of the south. Here, the Early Harvest and Bevan ripen late in summer—the Holland Pippin and Maiden's Blush at mid-autumn—and the the Golden Russet is a good keeping winter apple.

The Diana Grape.

From the experience I have had with this new variety, I should judge it difficult to grow from *cuttings*, as in several attempts I have not succeeded, and I have understood that others have met with similar failures. The wood is slender, which may be the cause. S. H. COLTON. *Worcester, Mass, 2d mo.*, 1850.

Farmer's Song.

BY W. L. EATON.

'A rural life is the life for me,'
Away from the city's strife,
Where the breath of Heaven is pure and free,
And nature 's full of life;
Where the earth is clothed with a lovely green,
The flowers smiling and fair,
And the wisdom of God is distinctly seen,
In all that flourishes there.

We do not envy the man of trade,
Whose life is with cares oppressed,
Who only is happy as wealth is made,
And not when others are blessed;
His life bound up in his merchandise,
His heart absorbed in his gains,
The beauty of earth shut out from his eyes,
But not from his soul, its pains.

We have nothing to do in Ambition's ways,
And do not envy the great,
Puffed up by the hollow voice of praise,
And perplexed with the cares of state;
Elated with hope or depressed with fear,
They must run when the people call;—
We are happier far in our humble sphere,
Than they in the Nation's hall

The gifts of Heaven are freely bestowed,
The harvest our labor crowns;
No despots can reach our peaceful abode,
We quail at no tyrant's frowns.
A rural home is the home we love,
Away from the city's strife,
We bow to none but the God above—
None know a happier life.

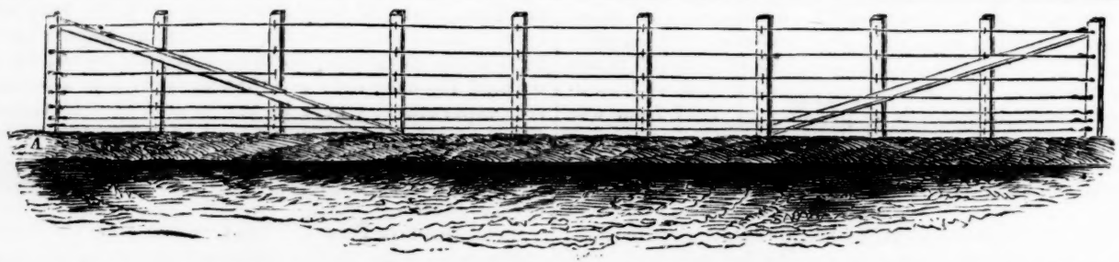


Fig. 1—*Section of fence—A. shows the bank, which may be made any required height. The first wire is 4 inches from the ground—the second is 4½ above that—the third 4½—the fourth 6—the fifth 7—the sixth 8, and the seventh 9 inches apart.*

Construction of Wire Fence.

EDS. CULTIVATOR—I observe in your January number, a correspondent expresses his fears, that those who have constructed wire fences, will be disappointed as to their durability and efficiency; that the swaying of the wire will have a tendency to break it off where it goes *through the posts*, and that the accumulation of water in the *holes* of the post, will rust the wire, and weaken and destroy it. If these premises were correct, the conclusions would not be so far out of the way. But I will say in all kindness that your correspondent, in this matter, is deficient in that wisdom which is "profitable to direct." I propose in this communication, to give my experience, and method of constructing *Wire Fence*. In 1845, I constructed the first wire fence that I, or any of my neighbors ever saw; it was something entirely new. This piece of fence is about twenty-five rods long. I have made more every year since, and now have more than a mile of wire fence on my farm, and I think I shall make no other kind unless it may be around yards, where shelter from the wind is desirable. In the first that I made, which has stood nearly five years, the wire appears as sound as when it was put on. I am of opinion that wire of the size of No. 10, will not be injuriously affected by rust, if it is not in contact with the ground, and care should be taken that it should not be. The advantages of wire fences over other kinds are, it costs less, is more durable, is not injured by high winds; is not likely to be broken by unruly cattle; where the frost heaves the post out, they may be driven down without difficulty; it obviates the difficulty of snow drifts where roads are thus fenced; gives an appearance of neatness to a farm, and a feeling of satisfaction to the owner that his crops are safe. The best method of construction is to set the posts one rod apart, and three of smaller size between, so as to have the spaces four feet between the posts to which the wire is fastened, by staples made of wire. The end posts of the line of fence must be firmly set and braced, as in the above engraving. I have a machine for

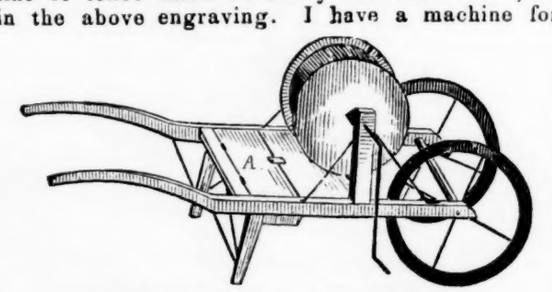


Fig. 2—*A. Box for Tools and Staples.*

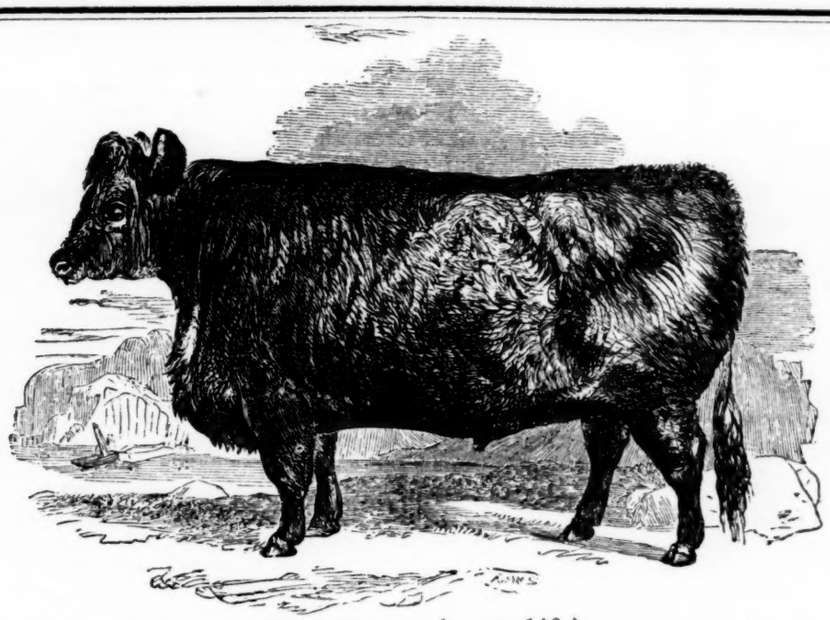
straining the wire, made similar to a wheelbarrow, with a reel 16 inches in diameter on an iron shaft 1¼ inches in diameter, as in Fig. 2, with a long

Fig. 3—*Manner of looping the Wire.*

crank for straining the wire, and a shorter one for reeling the wire on the machine. We unite the wire by looping it together as we reel it from the coil on to the reel; in reeling, one takes a coil unbound in his left hand and delivers it with his right, as another turns the reel with one hand and guides the wire with the other, on which he should have a thick leather mitten to prevent laceration from the flaws and slivers on the wire. Enough should be reeled at one time to reach at least, the distance required to be made. Place the machine about ten feet from the end post, in line with the fence to be made. A loop is formed on the end of the wire; one takes it from the reel to the further end post, and fastens it by driving a staple in the loop and another across the twist; then turn the reel till the wire is drawn nearly straight; then place the wire properly against the posts, and fasten it by driving the staple about half way in; then strain the wire as tight as you wish, drive the staple in the end post near the reel, tightly upon the wire; as the reel slackens, turn the wire back and cut it; form a loop, and drive a staple across the twist, as at the other end; then drive the intermediate staples not exactly tight upon the wire, and it is complete.

For road fences, seven wires are sufficient, if a bank is formed by two back furrows with a plow, for dividing fields, six are sufficient, or five, where cattle and horses only are to be guarded against. One pound of No. 10 is about 23 feet, which at 5½ cts., is four cts. a rod, nearly, which for 7 wires, is 28 cts. a rod for the wire, which I think is less than any other material can be furnished for; so that the wire, exclusive of the staples, will cost at that rate from 20 to 28 cents a rod. The whole cost of the fence, including posts, which are worth from two to four dollars per hundred, and the labor of erecting, is less than fifty cents per rod. The wire should be annealed before using, as it works better, and is not so apt to break in twisting. The tools necessary in making the fence, are two pair of pincers, to make the loops—such as are used by shoemakers will do—a hand-saw file for cutting the wire, a stick about four feet long, marked with the proper distances for the wire, by which the posts are to be marked for the wires.

The best way that we have tried to make staples, is to take a piece of wire about 20 feet long, fasten one end in a vice and then upon a flat bar of iron, 1½ or 2 inches wide, and about a quarter of an inch thick, wind the wire from the other end closely and tightly upon it; then with a sharp cold chisel cut the wire in the middle on both sides of the bar; 20 feet of wire will make about 120 staples, which can



GALLOWAY OX.—(*see p.* 146.)

be done in a few minutes. Wire No. 11 is large enough for staples. The staples drive and hold much better by being flattened at the ends, and the durability of posts is much increased by charring the ends a few inches above the ground line. I think there would be no great difficulty in constructing a machine to make staples as fast as nails can be cut, and I hope some machinists will do it. The staples should be from ¾ to 1 inch in length—three-quarters is best when driven into oak posts, and one inch for chestnut or cedar.

I have been thus minute in this description, in compliance with the request of your correspondent in the February No. of *The Cultivator*, and I hope if any of your contributors can give further information they will let us hear from them. I consider the introduction of wire fences, the most important improvement in farming that has been made since the invention of the cast-iron plow, and that a greater amount of iron will be required for fence, than for railroads or any other purpose, and thus benefit an important branch of our country's manufactures. HARRY BETTS. *Brunswick, Rensselaer County, N. Y., Feb.*, 1850.

EDS. CULTIVATOR—Since my last communication to *The Cultivator*, relating to wire fence, I have bought 60 pounds No. 10 wire, at 5½ cents per lb., which confirms the statement I then made regarding the price. I think it was manufactured in Fairfield County, Ct., and were I to construct a mile of this fence in a straight line, I think I would employ but two posts, placing one at each end. These posts should be set at least 3 feet into the ground, and as it is supposed that the posts are much less liable to decay when the holes are filled with small or broken stones, instead of earth, (see *Cultivator* for 1845, page 209,) I would adopt this method, raising the stones around the post a foot above the surface. A strong brace is placed against this post, the foot of which is so firmly planted in a hole directly under the line of the fence, against a flat stone, or plank, that it cannot yield when the wires are strained—the hole filled as above. The post is hewn flat on the side opposite the brace; small auger holes through the brace and post, are made at such distances as the workman may wish the strands to be apart.

The posts being thus placed at each end and angle of the line, the wire, which comes in a coil of a single piece, is introduced by inserting one end of it through the brace and post, and coiling it around a billet of wood, say 2 inches in diameter by 6 inches long, several times in each direction, by twining it around the strand between the billet and post in such a manner that it cannot roll when the wires are strained. The workman now takes the coil of wire and proceeds along the line, uncoiling as he walks, until he reaches the end of the coil. Another coil is now attached, which is done by laying the two ends on the ground, passing them some eight or ten inches by each other, and crossing them twice at about equal distances from the ends, like tying the first part of a common hard knot. A billet of wood like that at the post, except a few inches shorter, is laid on and the ends, brought up over the wood, and tied again, and twined around the main wires.

In this way the workman proceeds, until he reaches the other post, at the end or angle of the line, through which the wire is passed and drawn up as straight as can easily be done by the hands. It is there fastened to a billet of wood, as at the first post; each strand being thus extended with the same degree of tension, or as near as may be. The workman now proceeds to set large-sized common fence stakes. If the surface is undulating, on each eminence and in each hollow, these stakes are to be set into holes made with a heavy crowbar, two feet deep, and driven down with an axe or beetle, and about 15 or 20 feet apart, throughout the line. This being done, he again proceeds with hammer and nails and saw in hand, and inserts in the stakes saw cuts about 1½ in. deep, corresponding exactly with the holes and distances on the posts. Into these cuts the strands are placed, and a tenpenny nail is driven down nearly to the head, across the cut, confining the wire to the stake.

This being done at each stake, no further straining of the strands is necessary, when the surface is sufficiently undulating, but in most cases it will be necessary to attach a strainer, by means of a round stick, 4 inches in diameter, the same length of post above ground, with corresponding holes, and a two inch auger-hole near the centre. It is temporarily erected near the foot of the brace, the wires passed through, before passing through the brace and post,

and before the stakes are set, it is carried along on the wires to the centre of the line between the posts. After the wires are put into the saw cuts, a lever is inserted in the large hole, by which the strainer is turned around until the wires are sufficiently strained. The lever is left in, and a stick one inch in diameter and same length of strainer is put in an upright position between the lever and wires, which holds it to its place. In no case should the wires be made to form angles, or even small circles. As a preventive, billets of round wood are used, and the holes in the strainer rounded off.

The wire for a fence of the above description will cost about 17 cents per rod, and when designed for cattle and horses only, the whole cost I think, will not exceed 35 cents per rod. I am inclined to think that annealed wire requires no protection to prevent corrosion. It is said that annealed telegraph wires do not corrode to the injury of their strength, and it is fallacy to suppose that electricity prevents it, when no heat is conveyed to the wires. A recent newspaper relates an instance of a poultry yard having been surrounded 15 years with annealed wires, and they are yet in a good state of preservation. The annealing operation is easily performed, viz.: as a blacksmith heats the tire for setting on a wagon-wheel, allowing it to cool slowly. My cattle fence has 5 strands—top strand five feet, and bottom strand 22 inches from the ground—the space filled with the three remaining strands at equal distances. A. B.

The Farmer's Note-Book.

Galloway Breed of Cattle.

See Portrait—p. 145.

This valuable breed of cattle derives its name from a district of country in Scotland called Galloway, embracing several counties. It may be fairly considered aboriginal, and evidently closely allied to the semi-wild stock of Chatelherault Park —the descendants of an ancient race, which in early times roamed unrestrained in the Caledonian forests.

The true Galloways are without horns. Their color is generally black, though sometimes red and dun. Of all the polled breeds, they are the most highly prized, on account of their many excellencies. As observed by Professor Low—"The breed of Galloway is peculiarly confirmed in its characters, and thoroughly adapted to the condition of the country." Various crosses have been attempted with other breeds with a view of improving the Galloways; but the results, in the end, have not answered expectation, and in the language of Mr. Youatt,—"The intelligent Galloway breeder is now perfectly satisfied that his stock can only be improved by adherence to the pure breed and by care in selection."

It is for their superior grazing qualities that the Galloways are most esteemed. They fatten very easily, and their beef commands a high price in the English markets, it being fine in the grain, and the fat well mixed with the muscular parts. They are mostly slaughtered at three years old, and the average weight of those sent to the London market, is put down at 770 to 840 lbs., the four quarters. The qualities of the breed for the dairy, are only middling. The cows do not yield a large quantity of milk, but it is rich and affords comparatively a large proportion of butter, which is of the finest quality; and the average annual yield per cow, where all the milk is devoted to butter, is 150 lbs., though larger returns are often obtained.

The points of the Galloway ox, are thus given by Martin:—A well-bred Galloway is of admirable form; all is close and compact; the barrel is rounded and ribbed home to the hip-bones; the chest is deep, the shoulders thick and broad; the neck short and thick; the head clean; the back straight and broad; the limbs short, but extremely muscular; the skin moderate but mellow, and well covered with long soft hair,—that on the ears, which are large, is peculiarly rough and long.

We think the Galloways would prove a very useful breed of cattle for many sections of this country, particularly the mountainous and hilly portions of the northern and middle states. We have, on former occasions, expressed the belief that the introduction of these cattle and the West-Highlanders, would be a decided acquisition; and we trust that, through the aid of agricultural associations and enterprising individuals, we shall, before long, have the pleasure of seeing specimens of these valuable breeds in the country.

Southern Ohio.

EDS. CULTIVATOR—It is said all things were made for some good end—and surely it is wise to consider the design and fitness of things. One part of our country—by soil, climate, and market, is suited to one product—another, though not widely different perhaps, for an entirely different.

It is pretty obvious that this part of our great country is well adapted to the raising of stock. Without alluding to our extensive and fertile bottom lands which skirt all of our numerous streams, permit me to occupy a little space in considering the character, quality and capacity of the hills.

Most of them are filled with mineral wealth; iron and coal abound, with lime and marl, as well as the best qualities of stone and clay;—these however, are treasures to be developed in other years; the chief and always the earliest pursuit of a civilized people, is agricultural.

The soil is of every variety—the rich, tenacious red clay, limestone loam, and light sand may all be found contiguous—the latter near streams.

The timber consists of oaks of almost every variety, hickory, walnut, poplar, maple, beech, locust, mulberry and the vine.

Water abundant and pure—showers more reliable than in a level country.

Seasons mild, yet the air bracing; with less change and less severity than those parts of country under either the influence of lakes or prairies.

No marshes, and a very general exemption from the diseases incident to such districts.

Skirted on the south by the Ohio river, by which, at a very small cost, we are enabled to send our products to a market at pleasure.

As there are numerous streams which are navigable for flat boats for from twenty to seventy miles interior, the facilities for cheap transportation are excellent—besides the canals and railroads projected and already completed.

These lands are rough, but adapted to the most nutritious grasses; and while it is impolitic to plow very much, they are admirably adapted for stock of all kinds. Horses may be raised with profit, as we are nearer an eastern market than those with whom we come in competition. Cattle require but little care and thrive well; had I room, it would be easy to show that the dairy is eminently worthy of increased attention. Sheep of the larger breeds of

Merino can be grown by almost any of our farmers successfully, while the finest quality may be produced by those who devote the pains and attention. No where is stock more uniformly healthy, exempt from those diseases which in some localities render the business hazardous.

What we need is more attention devoted to the subject, more capital invested, and more care and skill in breeding.

There are tracts of valuable land bordering upon the Ohio river, such as above described which at most moderate prices are open to the purchaser. DARWIN E. GARDNER. *Marietta, Ohio, Feb.* 5.

Growth of Pumpkins.

EDS. CULTIVATOR—Last summer I had several pumpkin plants come up in my garden spontaneously; and as I devoted a part of the garden to pumpkins, I thought I would let some of them grow. They were not in the richest part of the garden, and I took no pains with them, only to keep down the weeds around them. Two grew very luxuriantly, and produced abundantly. I did not keep an exact account of the number that grew on one; but there were over forty pumpkins, which would average nine or ten pounds a piece. The other produced twenty-seven pumpkins, which averaged a fraction over 22 lbs. each. The heaviest weighed 33 lbs. The lightest weighed 9½ lbs. The whole amount was 601 lbs. The longest vine was 63 feet, and was still growing when I measured it.

I enclose a few seeds, out of one of the 27 pumpkins. Perhaps they will not do any better or as well in your climate, than your common pumpkins, but you can try them, or let some other persons have them. JACOB HITCHCOCK. *Dwight Mission, Cherokee Nation, Jan.* 24, 1850.

Cabbage Culture.

EDS. CULTIVATOR—I am induced to ask, through your journal, what are the effects of growing cabbages on soil? Is the crop an exhauster or renovator?

There is a little community of us here engaged in cultivating potatoes and cabbages for the southern market. We are on the bank of the Ohio river, immediately below New-Albany, Ind. Our practice is to take a crop of potatoes, and then a crop of Drumhead cabbage from the same ground in one season. We invariably find, that we can get a better crop of potatoes from the ground on which we took, the previous year, both a crop of potatoes and a crop of cabbages, than we can when we only take a crop of potatoes, and leave the ground idle till the following spring.

We have reason to think our experience is not singular in this matter; and we wish to know where the "protein compounds," which a writer in the *Edinburgh Review* speaks of as being found in the cabbage on analysis, are obtained—do they come from the subsoil or from the atmosphere?

Our soil is alluvial, rather sandy, and the subsoil similar to the surface for about thirty feet, when we come to a slate rock. We have had periodical overflows from the river, of three to five feet in depth, once in fifteen years, since 1800. In some instances, the water sweeps three or four inches from the surface, and in other places it deposites from one to two feet in depth. It is probable that the whole space our land now occupies, has in former periods constituted the channel of the Ohio. J. H. COLLINS. *Locust Lawn, near New-Albany, Ind., Feb.* 12, 1850.

Juries in Civil Causes.

BY DAVID THOMAS.

A lawyer of great experience, after reading my remarks in *The Cultivator* for October 1849, page 315, said to me, "that is correct as far as it goes, but it does not reach all the abuses that are practiced. The manner of selecting jurors, is often highly exceptionable. It was doubtless intended by the legislature that supervisors and assessors should choose the best men; but it too often happens when these officers convene, and proceed to business, that if A— is mentioned as a suitable person to serve in that capacity, the reply will be after this manner: "Yes, but he is actively engaged in affairs of his own, and it might be a great damage to him. We had better not impose such a burden on him." So of B—, so of C—; and in this way *second rate*, and *third rate* men have their names entered, and enough of them to make a jury trial but little better than a farce.

"Again—the manner in which juries often arrive at the amount of damages, is iniquitous; and nothing short of a burlesque on Courts of Justice. Suppose K— has slandered L—, and the latter asks damages. When the jurors have retired to their room, a difference of opinion is soon perceived,—and how do you suppose they make up their verdict? By carefully weighing the evidence, and trying to enlighten each other's minds? Perhaps they do so at first; but such discussions soon become tiresome; and not unfrequently they proceed to *chalk*, and take the *average!!* Now then is the time for partialities and antipathies to bud, blossom, and bear fruit. The juror is no longer restrained by the arguments or opinions of his colleagues; but with a view to the *average*, and apprehensive that others may be as *twistical* as himself in an opposite direction,—he marks down a sum which his sober judgment intimates is twice, or three times as great as it ought to be. In the mean time, others with a similar view, mark down only half or a third of what they believe to be just. The whole is then added together and divided by 12! and the foreman gives it in, under oath, as *a true verdict according to law and evidence!!*

"It is some comfort to know however, that the Court will generally set such verdicts aside, if the facts become known; but the utter worthlessness of juries in civil causes, is none the less palpable on this account."

Having forwarded to my learned friend, the preceding sketch for revision,—he sent me by return of mail, the following supplement,—saying however that he had no time to write on such subjects, except in the greatest haste.

"The habits of the great mass of those who are drawn to serve as jurors, do not render them the best judges of the intricate questions upon which they are called to decide,—not that they are deficient in natural endowments, or incapable by due training to resolve the doubts and difficulties which in every contested suit, must perplex men of the keenest intellect. We do not employ a blacksmith to make our coats, nor a carpenter to mend our watches, nor a physician to make our shoes,—and why? Simply because they do not understand the business, and others do. If I disagree with a neighbor as to our mutual rights, why should I refer the matter to 12 men whom I do not know, but of whom I may safely predict that they have been selected at random, and are no better at the solution of a difficulty than myself or my neigbor? Why not at once refer it for final decision to a judge, or a bench of judges, trained to reflection by years of study, and

by years of practice, which are the keenest of all sharpeners of intellect. Pay our judges good salaries, render them independent and at ease in a pecuniary point of view, and we can command the best intellect of the country to act as arbiters and umpires between man and man.

"When we reflect that at every circuit of our Supreme Court the most intricate questions come up for decision, differing in the different causes, and originating generally in kinds of business, or phases of circumstances with which "the gentlemen of the jury" are in no wise familiar,—is it at all wonderful that juries so often disagree? or if they agree, that their verdicts are so frequently set aside? The puzzling of witnesses, and the laborious efforts of counsel "to make the worse appear the better reason," leaves *nine* jurors out of *ten* in a sea of doubt, from which they cannot emerge, except by the aid of the judge. He recapitulates the facts, explains the law, and declares the application of the law to the particular facts in the case, and then the jury may come to a lucid conclusion. But why not leave all to the judge at once?

"It is a great error to suppose that it is an easy matter to act as a juror in an average of litigated causes. If the facts are perfectly plain, and the law equally so, it is true that juries can act without difficulty; but it so happens that when these things are so, there is little or no litigation. Men do not often go to law where their mutual rights or remedies are clear; none but a dunce would do so; or now and then a man in a passion to revenge himself of an enemy, might venture a small sum in costs, to give his opponent as much trouble as he makes for himself,—but such cases are rare.

"As a general thing, it is only in cases of doubt that men get entangled in law suits; and then is the time they need the aid of learned judges, and not the opinions of their neighbors who are as ignorant as themselves. Give us juries in criminal cases; but in all civil matters, I for one, prefer to run the risk of *corruption* on the bench, rather than abide the decision of *stupidity* and *prejudice* in the jury box."

Plantation Railroads.

EDS. CULTIVATOR—About two years since, we constructed a railroad of Red Cedar, extending from the Mississippi river about midway of the plantation to the sugar house,—a distance of two miles—for the double purpose of transporting our sugars and molasses to the river for shipment, and carrying our sugar to the sugar house. It answers many other valuable purposes, to wit:—The laborers are conveyed to and from their work in less time and without fatigue. No mud or broiling sun impedes their way. The various supplies for the place, and articles of transportation, are carried on the road. Though last, not least, a higher consideration has been kept in view. Every sabbath morning, all the people, *white* and *black*, are provided with cars to convey them to the church at the end of the road, to hear the word of God preached; the value of which no one can estimate.

The cost of the road did not exceed one thousand dollars per mile.

The greater portion of the road, (the rails being about six or seven inches square) is laid without cross ties; and seems to answer as well as that laid with ties—the ends of the rails being doweled together, and a short plank at the ends laid under.

The rails are bedded about half in the ground. The car wheels are without flanges, and are kept on the track by small horizontal wheels on a vertical axle, running inside the rails, and are not liable to run off. We feared flanges would cut the rails, as no iron is used. From present appearances the road may last twenty years. In our opinion the stock pays fifty per cent. per annum. Two horses are equal to twenty in the usual way. The heaviest load we have carried on it, was a steam sugar boiler, (a locomotive boiler) weighing 14,000 lbs., and without apparently affecting the road.

We believe railroads, both private and public are not yet fully appreciated.

Let us have a railroad *all* the way from New-York to New-Orleans—then where could the Union be divided? S. & R. TILLOTSON. *New-River, La., Dec.* 30, 1849.

Progress in Knowledge.

EDS. CULTIVATOR—Your able correspondent, Mr. Holbrook, in the February number of *The Cultivator*, very graphically portrays the controversy that has been going on for some years past, between the old and new school classes of farmers; I have, for a long time been an interested "looker on" in this matter, and if I am any judge in human progress, the old school or plow-jogger class are fast losing ground. The great number of agricultural papers that are distributed through the various sections of our Union, are fast doing away the prejudices that once so generally existed in the minds of practical farmers, against what used to be sneeringly termed "book farming."

There seems to be a general belief springing up among a large proportion of the tillers of the soil, that there are special and unerring laws which govern the vegetable, as well as the astronomical world; and reading, thinking farmers are beginning to understand the workings of some of these laws. Ten years ago, how few farmers knew even the name of silex, or silica, and much less of the part it played in the composition of their grains and grasses. But now, thousands upon thousands of our common farmers know all about silica. They know it is the material that gives stiffness to the straw; and they know the use of spreading sand or gravel upon their reclaimed peat meadows and drained swamps, the soil of which consists mostly of decaying vegetable matter. They know too, what is meant by phosphate of lime, and that it enters largely into the composition of the bones of animals; and they have learned too, that old bones can, by the efficient agency of vegetable chemistry, be prepared to be again worked up into new bones, as well as old gold and silver coin, can, by the agency of the mint, be again wrought into new eagles and dollars. And they further know, that ammonia is not the name of some heroine of a novel, or love-tale, but an important constituent of animal manure; finally, they have learned a great many other important things about book-farming. And with such instructors as Profs. Johnston and Norton, they are in a fair way of learning much more that will be of intrinsic value to them. "Science made easy," seems to be the object of Prof. Norton's letters, and that's what we working farmers want—must have, to be interested and benefitted by the labors of scientific men. Technical terms and formulas, are legal tender among the scientific, but they are at rather a discount among farmers at present, though we hope the day is not far distant, when the technical terms of chemistry will be as familiar among the intelligent part of the farming community as "household words." B. *Warner, N. H., Feb.* 19, 1850.

A Wet Cellar made Dry.

EDS. CULTIVATOR—A writer in *The Cultivator* for February, under the head of "Water-Tight Cellars," after some correct observations on the evils and inconveniences of a wet cellar, remarks, that—"every reader who has experience in the use of means to make a dry cellar, should communicate it to the public." Being one who has known the "evils" of a wet cellar, for nearly half a century, and which has within the last two years been converted into a dry one, I freely give the process for the benefit of all interested.

My dwelling stands on a moderate swell, contiguous to an extensive piece of low ground, and the bottom of the cellar being so nearly on a level with it, though furnished with a drain, was never dry, and was often very wet. Flat stones and boards were resorted to as a temporary relief, till in some parts several strata had accumulated. The walls having been laid chiefly with such stones as were gathered on the farm, and without mortar, became a thoroughfare for rats, which till recently, bid defiance to the efforts for their expulsion. This, in connection with the evil first named, made it necessary that something thorough should be attempted, and the work was commenced accordingly. All the varied furniture of a cellar, such as potato and apple bins, meat barrels, &c., was speedily removed. Several inches were pared off the bottom to make room for an equal amount of gravel. A trench was then cut entirely round the cellar, about six inches from the wall, which having been commenced on the surface, rendered this operation indispensable. The trench was carefully stoned with a double row of cobbles, and covered with flat stone, the surface of them being two or three inches below the general level. The old drain was re-opened and deepened sufficiently to receive the water from the inner drain. The next step was to procure a sufficient quantity of creek gravel to give a coating of two or three inches. The number of wagon loads used was five, the cellar being equal to about 30 by 20 feet. The gravel was made compact and sufficiently smooth to receive the mortar, by using a flat headed pounder.

Mortar made of quick lime and sand was then applied to the wall, and the chinks generally filled. But in more places than one, before the mortar had become hard, those marauding, sagacious animals, whose intelligence seems hardly inferior to those who occupy a higher place in creation, made their accustomed inroads. But to the main subject.

The necessary quantity of sand, say about sixty bushels, and four barrels of water-lime, being in readiness, the next step is to proceed to the mixture and application. Unless the sand is nearly free of pebbles, I think it best to sift it, though that is not indispensible. The proportion of each used, was one bushel of lime to three and a-half of sand, which being thoroughly mixed, was then reduced to the proper consistency for application. A vast quantity of water will be necessary, and if not at hand, it should be previously in readiness, as three hands will hardly be sufficient to tend a single mason. The cement was spread from an inch to an inch and a-half thick, and the work completed in about eight hours. The cash expense was about $8, labor estimated at about $12. From four to six weeks are necessary for the bottom to harden sufficiently to walk on without injury. It is well, as a precautionary measure, to lay down a few boards after a couple of weeks, and let them remain until the cement has become so hard as not to receive foot prints.

I have said the *cost* was about $20; the *benefit* of this improvement I will hardly trust myself to estimate. I have a dry cellar; the floor of which is as easily swept as that of any room in the house, and I am not aware that a quart of water has ever appeared on its surface as formerly, except from a supposed leak in a stone cistern, a few times, which was easily disposed of. And I would further say that the rats are beginning to find their case hopeless, it being a long time since they discontinued their unwelcome visits. G. BUTLER. *Clinton, March* 1, 1850.

Flax with Barley.

EDS. CULTIVATOR—I have, for a number of years, been in the practice of loaning flax seed to sow, for the purpose of obtaining a supply of seed for manufacturing into oil. For the last three years, the average yield has not exceeded ten from one, which is, indeed, a very ordinary yield. I have known farmers who had thirty from one, but it is considered a good return, if one bushel produces twenty.

I recently purchased from Mr. Lawrence Gardner, of Charlton, Saratoga county, N. Y., a little short of twenty bushels, which he raised among his barley, from a little more than a peck sown. Mr. Gardner assured me that the flax by no means interfered with the growth and yield of the barley—that it did not interfere with the harvesting, but on the contrary, it kept the barley so together as to render the harvesting less difficult.

This yield of about seventy-five from one, is perhaps unprecedented in this country; and it would be well for farmers, especially those who do not live at a great distance from Mr. Gardner, to ascertain his mode of sowing, so as to be able to effect such desirable results. X.

We find in the *Berkshire Culturist*, an account of a crop of flax and barley together. It was raised by Mr. REED MILLS, of South Williamstown, Mass. He states that he derived his information in regard to the crop, from *The Cultivator*, vol. iii, (new series) pp. 57, 127, 157. Last spring, he sowed an acre and a-half of ground with three bushels of barley and one of flax-seed. Before sowing, he soaked the barley in weak brine 24 hours, then rolled it in plaster, and added the flax-seed, mixing both together. He obtained 40¼ bushels of barley, worth 67 cents per bushel; 9 bushels of flax-seed, worth one dollar per bushel—the whole being worth $36.14; from which, deducting the expenses of cultivation, interest on land, &c., $11.50, a net profit was left of $24.64.

Farming Economy.

EDS. CULTIVATOR—Twenty years ago it was a common saying among farmers, that all a man could make in farming, was enough to support his family, and, possibly, save a hundred or two hundred dollars a year besides. Farmers who held this idea, were no doubt, honest; they only judged of the profits of farming from their own management. Even now, a great many farmers suppose that in order to make money by farming, they must do all the labor themselves; they say they "can't afford to hire help." This is evidently a great mistake, for if the farmer makes his own labor profitable, he could make that so which he hires, under good management, and without that, no labor can be profitable.

Labor in this country is high, in proportion to what it is in older and more populous countries; but I do not regard this as a subject of regret, for who is "worthy of his hire" if the day-laborer is not?

If the high price of labor operates against the interest of some, it tends greatly to improve the condition of the masses. As a matter of course, the farmer will save as much manual labor as possible, consistent with the proper cultivation of his farm.

But a great point in farming economy consists in the adoption of labor-saving machines and improved implements. Yet a good deal of hand labor will always be required to carry on farming advantageously.

The question is often asked whether capital laid out in farming can be made to *pay*. In reply, I would say, I have known many instances where money laid out in this way has paid well. It is true, that *time* is required for this result; but I believe that capital invested in farming, need never pay less than six per cent.; and under good management, it may yield even eight to ten per cent. on the original stock. The culture of fruits—such as apples, pears, peaches, &c.—often yields a profit of eight to fifteen per cent.

A great barrier to improvement in farming, is the erroneous value which farmers often put on *money*. They seem to think that a dollar is worth much more than its equivalent in wheat, or any agricultural product. This leads them to hoard their cash with scrupulous care, fearing to trust the earth with the loan of a cent—the risk being so much greater, as they say, than on deposites in banks. This difficulty can only be removed by demonstrating to the farmer, the certain success of a better system of management; which will gradually inspire confidence that labor and money expended on the soil, shall not go unrewarded. L. DURAND. *Derby, Ct., Feb.*, 1850.

Trial of Plows.

The New-York State Agricultural Society offer the following premiums on plows—the premiums to be decided by a trial to take place at Albany, commencing on Tuesday, the 4th day of June next, and to continue until the committee are fully satisfied that they have arrived at correct results.

Best Sod Plow for stiff soils, furrows not less than 7 inches in depth nor over 10 inches in width,	Diploma and	$15
Second best do.,		10
Best Sod Plow for light soils, furrows 6 by 12 inches,	Diploma &	15
Second best do.,		10
Best Plow for fallows or "old land,"	Diploma and	10
Second best do.,		8
Best Subsoil Plow,	Diploma and	8
Best Side-hill Plow,	Diploma and	8

A general competition for these premiums is invited, as the trials will be conducted and the decisions made without regard to any former trials or awards, and will be open to *competitors from any part of the world*.

Competitors must become members of the Society, for which an entrance fee of one dollar will be required, and their names, together with the names and number of the plows intended for trial, must be given to the Secretary, B. P. JOHNSON, Esq., Albany, on or before the 15th of May next. The plows for which premiums are awarded, must be deposited at the Rooms of the Society, if others of the same pattern are not already there.

The committee to superintend this trial and award the premiums, consists of A. Van Bergen, Coxsackie; John Delafield, Oaklands; J. Stanton Gould, Hudson; Sanford Howard, Albany; B. B. Kirtland, Greenbush.

The committee will meet at the Society's Rooms on Monday, June 3, to make arrangements for the trial.

In deciding the general question—what are the best plows? the committee will be governed by the following principles: 1st, the character of the work performed; 2d, the power required in draught; 3d, quality of materials, durability and cost of the implements.

For *stiff* soil, excellence of work shall consist, first, in leaving the furrow-slice light and friable; second, in so disposing the sod and all vegetable matter, as to insure its ready decomposition.

For *sandy* soil, or that which is already *too light*, the points in regard to quality of work will be, first, thoroughly burying the vegetable matter, and second, leaving the ground generally level.

For fallows or old land, the principal point in reference to the quality of work, will be thorough pulverization and friability of the soil.

In determining the power required in draught, the most perfect instrument will be used, and the trial will be conducted in the most careful and thorough manner.

The same implement for testing draught, and the same team, will be used for all plows in the same class.

The plows may be held by the competitors or by persons appointed by them, as may be preferred.

Importation of Animals from Asia.

The *Charleston* (S. C.) *Mercury* states that Dr. Davis, of that city, has imported the Cashmere goat, a pair of Bramin cattle, and some "Water oxen," together with an assortment of useful poultry. We suppose the Bramin cattle mentioned, belong to the Zebu race, a description of which, with a cut, will be found in our volume for last year, p. 59. It was there mentioned, also, that the late GORHAM PARSONS, Esq., of Brighton, Mass., introduced, and for several years bred, this kind of cattle. The "Water ox" is probably the common buffalo (*Bos bubalus*) of Asia, eastern Africa, and southern Europe—an animal which naturally inhabits swampy grounds and marshes, and has the habit of wallowing in mud and water. It is sometimes used in Asia for labor in the cultivation of rice grounds, and its milk and flesh are used in some countries for human food.

Among other remarks made in the paper above referred to, respecting the success of these animals in this country, it is said—"The Merino sheep, carried from its original locality, degenerates; but in Saxony crossed upon a coarse wooled sheep, makes a superior and more valuable animal than the Merino in Spain."

We do not think the Merino sheep generally degenerates when carried from Spain—that being the country which is probably alluded to as its "original locality." It has not degenerated in the United States nor in Europe, except under unskilful management. In regard to fineness of wool, it has been *improved* in Germany; as the finest wooled sheep of that country are, in blood, *pure* Merino. It may be true that some high cross of the improved Saxon with the common or "coarse wooled" sheep of that region, produces wool of a finer quality than the common Merino of Spain; but the original Merino blood is, nevertheless, that which is relied on as the foundation of the most perfect fleece.

WETTING BRICK IN LAYING.—The advantage of soaking bricks in water, to prevent the too rapid drying of the mortar, is so great, that a wall 12 inches thick built with wet brick, is considered better than one 16 inches thick with the brick unsoaked.

Letters from Prof. Norton—No. 4.

Neglected Manures--Bones.

ANALYTICAL LABORATORY, YALE COLLEGE,
New-Haven, Conn., March 7, 1850.

EDS. CULTIVATOR—The very important method for the application of bones, to which I alluded in the closing paragraph of my last letter, is that of dissolving them in sulphuric acid, the common oil of vitriol. Before describing the various ways of doing this, one or two other points must first be considered.

The first which I would notice is, that the phosphates of lime which compose bones, and in fact all of their earthy parts, are nearly insoluble in water; hence their action, unless added in a state of extremely minute division, or in very large quantity, is often tardy. It is sure and lasting, but the farmer often desires to produce an immediate effect, and that too without adding any very large quantity of the manure which in his neigborhood may be expensive or only procured with difficulty.

The second point relates to sulphuric acid. This is a cheap acid, costing by the carboy, from 2¼ to 3 cents per lb., at least in the vicinity of large towns and cities. It is very sour, and extremely corrosive, destroying animal and vegetable structures with great facility; it burns through flesh or clothing almost instantly, and a very small portion swallowed is fatal to life. It flows thick and has all the appearance of oil; placed upon wood it blackens and chars it, so that it looks as if it had been burned.

When strong, this acid destroys all vegetable life, but when diluted, it becomes a valuable manure. If mixed with so much water that the liquid has no perceptible sour taste, and sprinkled over fields by means of a water cart or other convenient machine, a very remarkable fertilizing effect is produced on many soils, thus proving that the acid itself contains something useful to plants. In certain situations it has been found to give very fair crops of turneps, without the aid of any other manure.

We may now proceed to an account of the changes which take place when this acid is applied to bones, and of the beneficial nature of the compound produced.

Various ways have been recommended for dissolving the bones, and I will mention a few of the most successful. The first step in all cases, is to dilute the acid with two or three times its bulk of water. If used of full strength, it chars and blackens, but does not dissolve the bones. When they are crushed into small pieces or powdered, one-third their weight of acid is sufficient to dissolve them; if whole and large, less than half will not do it completely.

A very common way of managing the solution, is to put the bones into an old hogshead or other convenient vessel, and then pour half or two-thirds the proper quantity of diluted acid upon them; they should be occasionally stirred, and if not dissolved after a day or two, the remainder of the acid may be added.

Another way which I have found very effectual, is to break down the bones and lay them in a heap, on a place where the acid cannot soak away. It should be poured in successive portions on the top of the heap, at intervals of half a day, turning over and mixing thoroughly each time. By both of these methods the bones are finally dissolved, or at least crumbled down to a soft pasty mass, that is mostly soluble in water. The solution is more ready if the bones are powdered slightly, moistened and laid in a heap, to ferment a month before use.

Several chemical changes take place while the bones are dissolving. When the acid is first added, a bubbling up or effervescence occurs; this is owing to the decomposition of whatever carbonate of lime may be present. The carbonic acid goes off, and the sulphuric acid unites with the lime, forming sulphate of lime or common gypsum, which is as all know an excellent manure for most soils.

The sulphuric acid then attacks the phosphate of of lime also, and unites with a portion of its lime, forming sulphate of lime again. The remainder of the lime is still united with all of the phosphoric acid; of course each pound of lime has much more of it than before, thus forming what is called a biphosphate or super-phosphate of lime, from its containing a double portion of phosphoric acid. This is much more soluble than the ordinary phosphate.

The acid also acts upon the organic matter or gelatine of the bones, bringing it into a state more readily soluble, and better fitted to supply the wants of plants. Thus we have sulphate of lime, superphosphate of lime, and soluble organic substances; all being manures of great value, and in states easily appropriated by the plant.

The bones when dissolved, are sometimes applied simply mixed with water. The water is added until no taste of sourness can be perceived, and the liquid is then distributed by a water cart. It produces in many cases most remarkable effects. In fact, when applied in this way, they are more efficacious than in any other, because they are more finely divided and more evenly distributed. It is however, an inconvenient and expensive method, and hence it is more usual to mix the dissolved bones with charred peat, or ashes, or vegetable mould, or sawdust, in sufficient quantity to dry up the acid, and make a compound which can be sown by hand or by a drill machine.

From the composition already given of this manure, it is obvious that it must be one of much value, and the results of its application in practice, fully confirm our theoretical conclusions.

It is found that for many crops, from two to four bushels of dissolved bones produce an effect equal to 16 to 20 bushels of bone dust, which latter has already been described as one of the most powerful manures used. It is a *cheap* application also; two bushels of bones would certainly not be worth more than 50 cts., and would weigh from 100 to 120 lbs. 50 lbs. of acid to dissolve them would cost $1.50, making a total expense of $2. This, with half the usual quantity of ordinary manure, is found quite enough for an acre, and thus appears to be far cheaper than any thing else that could be used with like effect.

Bones enough to fertilize several acres in this way, could be collected in the course of a year on every farm, and their use cannot be too strongly recommended. The trouble of preparation is little, save in imagination, and few who once make trial of them in the way here prescribed, will meet with disappointment. The mixture of dissolved bones and peat or ashes mentioned above, is to be applied either broadcast or sown in drills. This latter method is best in many cases, because it brings the manure in a position more directly and easily accessible to the roots. It should be sown in the bottom of a drill, then a light furrow over, and the seed above so as not to come in immediate contact with the mixture. This is for turneps and that class of crops. For wheat and grain it is best sown broadcast or by a machine.

Machines which sow the manures of this kind, and the seed at the same time, are used in England and would be valuable here. JOHN P. NORTON.

Facts and Opinions.

THOROUGH AND ENRICHING CULTURE.—The *Working Farmer* says that Samuel Allen, of Morris, N. J., rented last year a field which had been planted two years in corn, and gave only 24 bushels per acre. He subsoiled it, and applied 200 lbs. of Peruvian guano and 200 lbs. of bone dust, composted with charcoal dust, costing six dollars; and the result has been that he raised at the rate of 72 bushels of shelled corn per acre.

TIMBER FOR WORM FENCES.—In the discussions in the Legislative Agricultural Club of Ohio, one member stated that worm-fence rails, well kept from the ground, will last 20 years—another, that if well put up, the fence would last without repairs 8 years, when it should be re-layed every 4 years, adding two new rails each time. Handsome fences were made by splitting all the rails from the centre of the log of one shape, the ends notched together. The rails are found to last longest when cut in summer, and the bark peeled, so that they will speedily dry as hard as horn, and not remain wet so as to become soft and half decayed by partial fermentation. Black Walnut will thus last 40 or 50 years, and oak heart 20 or 30. Shell-bark hickory, peeled and seasoned, will last 20 years or more.

DURABILITY OF POSTS.—In the same discussions, one member said he had used burr-oak posts 7 years, and thought they would last 6 or 7 years longer. White oak will last, according to another member, ten or twelve years; locust 20 years or more. Another stated that cherry rotted in eight or nine years; white oak in 10 to 14 years; black walnut in 9 to 10 years; locust 20 years. Much depends, it was affirmed, on the character of the soil; moist land causing a sooner decay than dry.

AGRICULTURAL PAPERS.—The *American Agriculturist* says that of the 20 million inhabitants of this country, more than three-fourths of whom are engaged in agricultural and horticultural pursuits, and most of whom obtain their entire support from these avocations, *not one in two thousand*, and we much doubt if there is *one in three thousand*, who subscribe for and read a purely agricultural paper!

CORN COBS.—The *American Farmer* says, "we believe there is one-third as much nutriment in a bushel of the cobs, as there is in a bushel of the grain; and we know that cows or oxen, fed upon three pecks of the crushed and steamed cobs, in addition to their usual quantity of hay or fodder, *will keep fat*."

PROGRESS IN MICHIGAN.—According to the census of 1840, and the assessors returns in 1849, the increase in sheep and wool in Michigan, has been as follows:—In 1840, 99,618 sheep, and 153,375 pounds of wool—[rather small fleeces.] In 1849, 610,563 sheep, and 1,645, 750 pounds of wool.

There is not so great a disparity in the quantity of grain. In 1840, there were 2,157,000 bushels of wheat, and 4,566,000 bushels of other grain. In 1849, there were 4,739,000 bushels of wheat, and 8,179,000 bushels of other grain.

THE GREAT EXHIBITION.—It is stated that the Committee, who have in charge the arrangements for the World's Great Industrial Exhibition, to be held next year at London, have already determined to erect a building *a mile in length*, with five avenues each a mile long, and that this is only to begin with, as it is thought to be quite too small for the whole. This will appear more probable, when we remember that at the late *exhibition of implements* at the Fair of the Royal English Agricultural Society, 27 acres were covered by them. To understand well, all that is to be seen at the great approaching exhibition, will require about the same length of attentive observation, as the tour of Europe.

BENEFIT OF DEEP PLOWING.—The *Michigan Farmer* states that H. B. Lathrop, of Jackson Co., in that State, put in a piece of wheat, plowing not less than *eight inches deep*. At the same time, a neighbor plowed an adjoining field, being careful that the plow did not run more than *four inches deep*. The deep plowing gave *thirty-two* bushels to the acre, and the shallow plowing only *seven*. A portion of the sub-soil often operates as manure, and a deep soil prevents excessive flooding, as well as excessive drouth. The result, however, may vary much with change in localities, but may be easily determined by experiment.

IMPORTATION OF MANURES INTO GREAT BRITAIN.—It is computed that the importation of guano into Great Britain in a single year, has been 219,764 tons, and that the importation of bones has been of equal amount, making an aggregate of upwards of 500,000 tons of fertilizers of this kind in one year, which at $5 per ton, amounts to an outlay of £2,500,000—($12,500,000.)

MINERAL MANURES.—An article in the *Edinburgh Quarterly Review*, attributed to Prof. JOHNSTON, speaking of the failure of certain "patent mineral manures," remarks—"Those insoluble manures have now disappeared from our markets; purely mineral mixtures, however, still retain an uncertain and temporary hold upon the public favor. But two facts are sure to banish them from the list of fertilizing substances, which can generally be relied upon in all soils and for all crops. These are, *first*, that plants do really obtain and require from the soil certain forms of organic food; and, *secondly*, that all naturally fertile soils do contain a sensible proportion of such organic matter. Suppose a soil to be deficient in this organic matter, a purely mineral manure, compounded, cannot supply it; and the application of such a manure upon such soils must be followed by a failure. But let it be naturally rich in such matter, and the mineral mixture may possibly be applied with a profit."

RICHNESS OF MILK.—An experienced farmer says, "I find by churning the milk separate, that *one* of my best cows will make as much butter as *three* of my poorest cows, giving the same quantity of milk."

LARD OIL.—It is estimated that 11 million pounds of lard and fat pork will be used in a year in Cincinnati for making lard oil, nearly one-third being converted to stearine. The fat is extracted from the pork, after it is divested of the hams, by means of hot steam under about five atmospheres in large tanks. One establishment thus reduces 600 hogs per day.

TO DESTROY MOLES.—The *Michigan Farmer* gives in substance the following, which must go for what it is worth:—A lady farmer said the meadow moles had annoyed them greatly, and had destroyed two fine pear trees. She tried an expedient for them with triumphant success. Their subterranean passage was uncovered, and two cow's horns, with the large ends from each other, placed in it, so that the moles, coming either way may enter the horns. Such is the "natur of the crittur" that it never backs out of a scrape, persevering ahead till it makes its way or dies in the attempt. The latter it does in the present instance.

Answers to Correspondents.

Substitute for Wringing Clothes.—M. M. B., Boston. We have no information in regard to Robinson's Drying Machine, except that given by our correspondent "R.," in our last volume, page 147. We shall feel obliged if any one will tell us where it can be had, its cost, &c.

Curculio.—S. R. G., Bristol, Ct. We have not a cut of this insect at hand. You will find a good mode of destroying it described in our volume for 1848, page 182. The insect is well described (with cuts,) in Thomas' *Fruit Culturist*, pp. 315, 320.

Sweet Potatoes.—S. D., Granville, N. Y. We doubt whether it would be an object to attempt the cultivation of sweet potatoes so far to the north. But if you are disposed to try them, get an early kind from New Jersey, place them in a hot-bed, and when the sprouts are two to three inches above the ground, break them off carefully, close to the potatoes, and set them in hills or ridges, raised a few inches above the surface—two plants to the hill—the hills two by three feet apart. The soil should be loose and warm, and moderately rich.

Dwarf Pear trees.—"A Subscriber." Dwarf pear trees are formed by grafting the pear on the quince stock. See any modern work on the culture of fruits.

Wind-Mills.—E. G., Bradford Co., Pa. You will find some information on this subject in our vol. for 1846, p. 221. In a late number of the *Boston Cultivator*, Leander Morton, of Hatfield, Mass., gives a brief description of a windmill of his own invention. Its cost is said not to exceed one hundred dollars. He says—"Run a shaft up through the roof of your wood house, with a fly wheel on the top, similar to a tub-wheel, bottom upwards, and build a round house around your fly wheel with doors opening to every point of the compass. If the wind is in the North and South, open your North and South doors, and give it a passage through, upon the extremity of the wings of the wheel. If in the East or West, open your East and West doors, with ropes attached thereto, to let on or shut off wind at your pleasure. Place a drum around the shaft in your wood house, with a connecting belt to the axle of your circular saw.

Threshing Machines.—A. J., Smyrna, Del. For a machine that will thresh the amount you speak of—800 bushels per day—we would refer you to Joseph Hall, Rochester, N. Y.

Separators.—A. J. Pitt's separators we believe work well. They could probably be had of Mr. Hall, at Rochester, or of J. A. Pitts, Springfield, Ohio.

Potatoes.—J. E., Warren County, Pa. Potatoes do not usually do as well on the same ground year after year, as when planted in rotation with other crops; but if it becomes necessary to continue them on the same spot, plow in considerable vegetable matter, in the shape of litter or muck, with moderate dressings of animal manure.

Grass seed sown with Buckwheat.—J. E. Land is sometimes seeded to grass with buckwheat, and in favorable seasons will *catch* well.

Harvesting Machines.—G. B., Goderich, C. W. See answer to inquiry under this head in our last number, (page 121.)

Dorking Fowls.—We have seen fowls imported as Dorkings, as well as others bred here from imported stock, that had but four toes to a foot. We have no doubt that the fowls to which the name of Dorking was first applied, had five toes. Whether any of their descendants unmixed with any other blood, have only four toes, we cannot say. But fowls are now called Dorkings which are quite different from those first described under this name.

Carrots, Beets, &c.—T. B., Kingston, C. W. The cultivation of these crops on the same land for for several years in succession, with good manuring, does not injure the land for grain crops.

Stable Manure.—T. B. We know of no "artificial manures" that are preferable for "crops in general" to good stable manure. If the stock is fed liberally, as you say, with grain and roots, the manure is all the better.

Apple Trees.—W. D. H., Berks county, Pa. Apple trees of good kinds can be bought here, of Wilson, Thorburn & Co., at $18 per hundred.

Peat.—M. D. Jr., Lynchburg, Va. Peat is bog earth, formed chiefly by the growth and decay of moss, in wet or swampy situations. Various aquatic plants and trees also grow in many instances, in these places. The plants add their annual growth, and the trees shed their leaves and drop their dead branches, and in time die themselves, and their trunks mingle with the other substances; and thus the mass accumulates. The lower portion becomes compact by pressure, and in the oldest bogs may be cut out in pieces, which may be dried and used for fuel. The modes of using it for manure have been often described by us. See *Cultivator* for 1847, p. 297.

Carrot Seed.—M. D. Jr. The orange carrot and the white carrot are most productive. The seed of both kinds is kept at the principal seed stores in all parts of the country.

Swine.—W. B. D., Pekin, Ill. There are no Berkshire hogs, nor any known as the "Columbia breed," in this vicinity. The Suffolk breed fattens easily. William Stickney, of Boston, has stock of this breed, imported by himself, for sale.

Improvement of Sandy soils.—S. M., Winsted, Ct. The best means of improving sandy soils, are to apply wood ashes, and well decomposed compost manure. Sow red clover, six quarts or twelve pounds to the acre. If white clover does not "come in," sow two quarts of that seed, per acre, mixed with the red. It has an excellent effect in binding the soil. If plaster is known to operate well on similar land in your neighborhood, sow about 100 pounds per acre, every spring. The plaster and ashes may be sown and left on the surface; the manure should be well harrowed in, or covered with a light furrow. The grazing of sheep is very useful in compacting sandy soils, and in connection with clover and turneps, has been practiced with much advantage. See our volume for 1847, pp. 53, 261.

Sale of Merino Sheep.—We are informed that Messrs. J. D. Patterson, of Westfield, Chautauque county, and A. S. Patterson, of Perry Centre, Wyoming county, N. Y., have lately purchased of Messrs. E. & W. Hammond, of Middlebury, and Jesse Hinds, of Brandon, Vt., upwards of 100 superior Merino sheep. For one lot of 20 young ewes, the price is stated to have been $20 per head.

Advertisements.—Several correspondents have urgently requested that articles advertised in our columns should have the prices affixed to them, and we submit whether the interest of both buyer and seller would not be promoted by this measure. Persons might in many cases be induced to purchase at once, rather than to take the trouble to open a correspondence to learn prices.

Notes for the Month

Our Premiums for Subscribers.

We offered, it will be remembered, TWENTY PREMIUMS, to those who should send us, with the payment in advance, previous to the 20th of March, the greatest number of subscribers to The Cultivator for 1850. In announcing the result, it is proper for us to say, that none of our Agents in the cities are included among the competitors for the prizes, which will account for the non-appearance of their names in the list of those receiving Premiums.

We annex a list of the twenty persons who have obtained the prizes; and we take this occasion to tender to them, and to all others who have so kindly acted as Agents, our most hearty thanks:

1. A. Cary, Fort Plain, N. Y.,	245 subs.	$50.
2. L. W. Curtis, Madison, N. Y.,	204	$40.
3. Wm. E. Calkins, Ticonderoga, N. Y.,	178	$30.
4. H. & J. Brewer, Springfield, Mass.,	130	$20.
5. C. P. Waller, Honesdale, Pa.,	116	$10
6. Wilson Dennis, Quakertown, Pa.,	114	Each
7. Samuel Brooks, Edgefield C. H., S. C.,	113	
8. L. Richmond, Woodstock, Vt.,	104	$5.00
9. Hiram Mills, Lowville, N. Y.,	89	
10. O. C. Chamberlain, Richfield Sp'gs, N. Y.,	87	
11. M. Davis, Jr., Lynchburgh, Va.,	86	Each
12. James Wells, Johnstown, N. Y.,	80	
13 Willetts Keese, Peru, N. Y.,	76	$3.00
14. L. Helmer, Ilion, N. Y.,	65	
15. R. S. Bartlett, Binghamton, N. Y.,	54	
16. Wm. McKinney, Ida Mills, N. Y.,	51	
17. J. H. Reid, Fredericton, N. B.,	46	
18. F. H. Fessenden, Brattleborough, Vt.,	42	
19. A. N. Barber, Harwinton, Ct.,	41	
20. Charles Root, Gilbertsville, N. Y.,	40	

To all the above, except the first four, we shall add to each premium, a copy of the second volume of THE HORTICULTURIST. We shall also send a copy of the same volume, in addition to the *American Fruit Culturist* to which they are entitled, to all those who have sent us thirty or more subscribers, as follows:

W. H. White,	39	M. Crowell,	32
G. A. Ainsworth,	38	F. B. Smith,	32
J. M. Hart,	38	Jas. La Roche,	31
Jedediah Miller,	38	P. M. Ross,	31
J. D. Spinner,	37	P. C. Stone,	31
Thos. Briggs, Jr.,	36	E. Adams,	30
H. Moore,	36	A. Cornell,	30
R. H. Van Rensselaer,	35	J. Franc,	30
J. N. Sawyer,	35	S. C. Jackson,	30
W. L. Avery,	34	James Lee,	30
C. W. Kellogg,	33	R. S. Marshal,	30
B. Macomber,	33	O. F. Marshall,	30
E. H. Townsend,	33	C. C. Purdy,	30
Charles Bartlett,	32	J. B. Packer,	30
J. W. Reed,	32	Jas. Culver,	30

To all others who have sent us 15 or more subscribers, a copy of THOMAS' *American Fruit Culturist.*

COMMUNICATIONS have come to hand since our last, from A. B., H., T. H. Collins, A Wool Dealer, C. E. G., Lotan Smith, Jacob Hitchcock, E., David Thomas, G. Butler, Levi Durand, C. F., F. Holbrook, F. Engle, G. H. Dadd, ———, Prof. Norton. D. D., Thos. Craighead, Jr., J. H. Salisbury, Wm. R. Prince, R. W., A. S. Copeman, D. D. C.

BOOKS, PAMPHLETS, &c., have been received as follows:

An Address before the Anderson District (S. C.) Farmers' Society, November 21, 1849, on the four principal means of improving the soil.—Draining, Subsoil Plowing, Rotation of Crops, and Manuring, by Dr. O. R. BROYLES.

Annual of Scientific Discovery—a Year-Book of Facts in Science and Art, for 1850, from the publishers, GOULD, KENDALL & LINCOLN.

A package of Seeds, from the Commissioner of Patents.

Report of the Committee of Supervison of the first exhibition of Domestic Poultry, held at Boston, November, 1849, from Dr. E. WIGHT.

Scions from a Seedling Apple, from W. DENNIS, Quakertown, Pa.

Grammar of Arithmetic, or an Analysis of the Language of Figures and Science of Numbers, by CHAS. DAVIES, L. L. D., from A. S. BARNES & Co., publishers, New-York.

Annual Report of the Board of Agriculture of Ohio, for 1848, from P. C. STONE, Esq., Tallmadge, Ohio—pp. 220.

Guenon's Treatise on Milch Cows, with Introductory Remarks on the Cow and the Dairy, by J. S. SKINNER—pp. 68—price, in paper covers, 37½ cents, from the publishers, FANGS, FLATT & Co., New-York. The same, from Mr. MCELRATH, bound, price 62½ cents.

Address before the Hartford (Conn.) Ag. Society, by SIMEON HART, Esq., of Farmington.

AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM.—The Committee of the Assembly, to whom was referred the report of the Commissioners appointed to mature a plan for an Agricultural College and Experimental Farm, together with that part of the Governor's Message and other papers relating to the same subject, have brought in a bill for the establishment of such an institution. This bill makes liberal provision for effecting the general design and purposes contemplated, and proposes that the Comptroller be authorised to borrow, on the credit of the State, the sum of one hundred thousand dollars for establishing and carrying on the institution. The bill has not yet been acted on, but we understand that a favorable feeling is manifested in regard to its general features, in both branches of the Legislature.

"IMPORTED SHORT-HORNS—MR. BATES' STOCK."—We have received from AMBROSE STEVENS, Esq., a reply to the remarks of Mr. CHAPMAN, on this subject, published in our January No. Having published Mr. Stevens' commendation of his and Mr. Sherwood's cattle, in our last volume, in which it was thought by Mr. Vail's friends, that injustice was done to Mr. V.'s herd, it became a matter of duty to give place to Mr. Chapman's reply. But as we can perceive no benefit to be derived by our readers from a continuance of the controversy, and as the question has a personal bearing on the interests of two public spirited importers of foreign cattle, we think it best to decline any further discussion of the points at issue, in our pages.

NORTHERN FARMERS IN VIRGINIA.—We have received a communication from a gentleman formerly a citizen of the State of New-York, but who at present resides in Powhattan county, Virginia, on a farm of 700 acres, purchased by him a few years since. In relation to the advantages which that section possesses for northern farmers, he appears to have experienced some disappointment; and he comes to the conclusion that the investment of money in Virginia lands, will not generally prove profitable, under any management that can be adopted, "compared with the same expenditure of labor and money in the State of New-York." He gives various reasons for this conclusion, the principal of which is, that the expenses which the farmer must necessarily incur there, are much greater, in proportion to his income, than at the north. Among the heavy expenses of the farmer in Virginia, he cites those of educating his children. He must either hire a teacher for his family, or pay very high charges for sending them to schools, often at a great distance. Expenses of transporting produce to market are represented as much greater than at the north, and though what the farmer has to sell does not generally, command a higher price than in New York, everything he has to purchase is considerably dearer.

FINE CATTLE.—The butchers of Albany, purchased several fine animals for their usual display of meat on the 22d of February last. E. KIRKPATRICK purchased of CLEMENT LEACH, of Eaton Madison county, N. Y., a pair of short-horned oxen, five years old, raised by E. SHELDON, of Sennett, Cayuga county, N. Y., which received one of the premiums on fat cattle at the State Fair at Syracuse; also a cow, five years old, apparently a mixture of Short-horn and Devon, which received the first premium on fat cows at the same show. J. FREDENRICH purchased the fine Short-horn heifer of J. BARBER, Homer, Cortland county, which took the first premium for fat heifers at Syracuse. These

were very superior animals—fully equal in fatness and weight in proportion to offal, to any we have ever seen in this market.

Diana Grape.—Several of our subscribers have asked us to send them buds or cuttings of this grape. There are none to be had in this vicinity.

Good Crop of Corn in Massachusetts.—Mr. Luther Butterfield, of Tyngsborough, Mass., informs us that Mr. Underwood, of that town, raised ninety bushels of corn to the acre last year. We should be glad to receive his account of the mode of cultivation.

Livingston County Cattle.—Mr. Robert Rome, of Mount Morris, Livingston county, N. Y. passed through this city on the 16th of March last, with nineteen head of cattle, fatted by himself, several of which were remarkably fine. Among them we noticed a pair of roan oxen, five years old this spring, half blood shorthorns, bred by Mr. R., weighing 4,820 pounds. They received one of the premiums on fat cattle at the State Fair at Syracuse. A pair of Devon oxen, five years old, bred by E. P. Beck, of Sheldon, Wyoming county, weighing 3,702 pounds. They received the first premium for *grass-fed* cattle at Syracuse. A red Short horned cow, five years old, bred by Halstead, of Castile, weighing 2,075 pounds. A roan cow, in part of Short-horn blood, bred by Hon. A. Ayrault, of Geneseo, weighing 1,900. She received one of the premiums on fat cows at Syracuse. A heifer, three years old, in part of Short-horn blood, bred by Mr. Rome, weighing 1,608; three steers bred by him, same age and similar blood, weighing, 1,700—1,670—1,610 lbs. A pair of oxen, of the common stock, weighing 4,420 pounds. One of the first mentioned oxen, the Devon oxen, the two cows, and the three-year old heifer, were animals of a symmetry and quality seldom equalled. These cattle were designed for New-York, and will afford the epicures of that city such beef as they do not often get.

Good Prices.—We are informed that Messrs. Hill, of Bridport, Vt., sold a three-year old colt, by Black Hawk, a few weeks since, to Col. Carroll, of Maryland, for $1,500; and that they have lately sold a three-year-old filley, for $300. Other colts and fillies, two to three years old, are mentioned as having been sold at prices of $300 to $600 each. An advertisement of Black Hawk for the present season will be found in this number.

Mr. S. A. Gilbert, of East-Hamilton, Madison county, N. Y., passed through this city a short time since, with a substantial gelding and beautiful mare; the former of which he purchased in Walpole, N. H., and the latter of Mr. Ingraham, of Chester, Vt. They were both by the well known horse, Gifford Morgan. The mare is six years old, well made, and a fast traveller. We understand the sum paid for her was $300. She will be an acquisition to the fine stock of Messrs. Ackley & Gilbert, whose horses, Morgan Hunter, and Morgan Chief, are advertised in this number. It will be seen, also, that Messrs. Mason & Co., advertise the fine horse Major Gifford. An advertisement of Mr. Burnett's noted horse Consternation, will also be found in this number.

The Yam Potato.—During the last two years, we have frequently heard this variety of potato mentioned as superior to most kinds in resisting the rot. Mr. Lotan Smith, of Sullivan county, N. Y., first brought this potato to our notice. He left some for distribution last spring, with Mr. Johnson, secretary of the N. Y. State Ag. Society, and several persons who raised them last season, have spoken highly of their productiveness, and of their good qualities for the table. Mr. Smith states that they out yield all other varieties he ever planted, not excepting the Rohans, and that they retain their qualities later in the spring than other kinds. They require a full season to grow, and should on this account be planted early. By reference to Mr. S.'s advertisement in this number, it will be seen that he has the variety for sale.

Eggs from Choice Fowls.—We acknowledge the reception of several packages of eggs, viz., from Capt. Francis Alden, Dedham, Mass., samples from a stock imported from Shanghae, China, by Mr. C. B. Marsh, in 1848, and from a stock known as the Forbes importation, from the same place; from Mr. John Fussell, Jamaica Plain, Mass., a sample from a stock imported from Shanghae in 1849; from Dr. E. Wight, Boston, a sample from his Dorkings, described in our last number. We saw specimens of Capt. Alden's fowls, of the Marsh stock, at the great poultry show in Boston, last November, and noticed that they showed striking marks of having been bred with care and skill. They were very large—the hens weighing 8 to 9, and the cocks 10 to 12 pounds each—of good form, and quite uniform in color and general characters. We have not seen Mr. Fussell's fowls; but are informed that they are similar to Capt. Alden's. The laying qualities of both are said to be first rate.

Loss in Importing Stock.—The sheep noticed in our Dec. No. of last year, page 378, as on their way from England to our correspondent, J. H. Reid, Esq., Fredericton, New-Brunswick, we learn with much regret, died on their passage. Mr. Reid has since, however, ordered another lot from Mr. Large, among which is a New Oxfordshire Ram, for which he pays £50 sterling.

Annual of Scientific Discovery: or Year Book of Facts in Science and Art, exhibiting the most important Discoveries and Improvements in Mechanics, Useful Arts, Natural Philosophy, Chemistry, Astronomy, Meteorology, Zoology, Botany, Mineralogy, Geology, Geography, Antiquities; together with a list of recent scientific publications; a classified list of patents; obituaries of eminent scientific men; and an index of important papers in scientific journals, &c. Edited by David A. Wells and George Bliss, Jr. Boston: Gould, Kendall & Lincoln.

We believe this is the first attempt in this country, to embody the items of annual discovery; though books of this kind have been published for several years in Europe. The volume comprises nearly four hundred pages, handsomely printed and well bound. We cannot doubt that it will meet the approbation of the public, as it furnishes in a convenient form, a collection of the most important facts which have been brought out during the past year. The work is well arranged, and great care has been taken to insert nothing except on good authority. The editors state that Professors Agassiz and Horsford, of the Lawrence Scientific School, Cambridge, have rendered them important assistance in preparing the work.

☞ Our attention was lately attracted by a beautiful lot of Game fowls—four cocks and twelve hens—from the stock of Mr. T. C. Abrahams, West Troy, designed for Mr. J. H. Stickney, Boston.

False Economy.—The *Am. Agriculturist* estimates there are ten farmers who waste $50 annually in manure, where there is one who pays a dollar for an agricultural paper, which would show him how to save it.

UNITED STATES STANDARD BUSHEL.—This contains 2150.42 cubic inches. Its dimensions are 18½ inches (inside) diameter, and 8 inches deep, and when heaped the cone must be at least 6 inches high.

Prices of Agricultural Products.

New-York, March 18, 1850.

FLOUR—Genesee, per bbl., $5.62½*a*$5.75—Ohio and Michigan, $5.18¾*a*$5.37.

GRAIN—Wheat, Genesee per bush., $1.28*a*$1.30—Ohio, $1*a*$1.15—Canadian, $1.06*a*$1.10. Corn, Southern, 56*a*57c.—Northern, 56*a*57c. Rye, 57*a*58c. Oats, Northern, 40*a*43c.—Southern, 33*a*34c.

BUTTER—best, per lb., 18*a*23c.—Common state, 8*a*15c—Ohio, 7*a*12c.

CHEESE—per lb., 6½*a*8c.

BEEF—Mess, per bbl., $8.75*a*9—Prime, $5.75*a*$6.12.

PORK—Mess, per bbl., $10.37*a*$10.44—Prime, $8.94*a*$9.

LARD—per lb., 6*a*6½c.

HAMS—per lb., Smoked, 8*a*9c.

HEMP—per ton, American dew-rotted, $155*a*$160.

COTTON—Upland and Florida, per lb., 11½*a*13c.—New Orleans and Alabama, 11¼*a*13¾c.

WOOL—(Boston Prices.)

Prime or Saxon fleeces, per lb.,	43*a*45c.
American full blood Merino,	39*a*42
do half do	35*a*37
do one-fourth do, and common,	33*a*34

☞ At the great sale of wool in New-York, March 13th, about 300,000 pounds of American fleece wool was sold as follows:

13,000	lbs. common and quarter blood,	33c
20,000	half blood Merino,	34*a*35c.
44,000	three-quarters and full blood Merino,	37c
35,000	Saxony and Merino, Pa.,	38½c
35,000	" " New-York,	40c
25,000	" " " extra fine,	43c
30,000	extra fine Saxony, (Washington Co., Pa.,)	46c
15,000	three-qrs. to full blood Merino, Pa. and Ohio,	38c
15,000	half blood, "	35½c
30,000	three-quarters Merino,	36½c
19,000	three-quarters to full blood Merino,	38½
20,000	full blood Merino and Saxony,	45c
1,500	black fleece,	34c
8,000	unwashed fleece,	24½*a*27c

There was a large attendance at the sale, of manufacturers from abroad. The wool was all purchased for home consumption, with the exception of about 80,000 lbs., which was bought by New-York speculators and dealers. About 80,000 lbs. was purchased by one mill—the Manchester (New Hampshire) Print Works.

NEW-YORK CATTLE MARKET.

Monday, March 18.

At Market—1,500 Beeves, (1,000 Southern, the remainder from this State and the East,) 75 Cows and Calves, and 2,500 Sheep and Lambs.

BEEVES.—Owing to the inclement state of the weather, the attendance of the trade was comparatively sparse to-day, and the market closes inordinately dull. Good retailing qualities have been selling since our last at from $5.50 to $7.50 per cwt. as in quality. This is a fraction lower. About 400 would remain over unsold.

COWS AND CALVES—Rather dull of sale at from $20 to $30*a*$42.50. Left over, 200.

SHEEP AND LAMBS—The supplies are gradually falling off. Sales at from $2.25 to $3.75*a*$5.50. 200 would be left over. *Tribune.*

Osage Orange Seed for Hedges.

A SUPPLY of fresh Osage Orange seed, just received from Texas—price $1 per quart, $7 per peck, $25 per bushel. Directions for raising the plants and managing hedges are given in the *Ohio Cultivator*, and will be furnished to each purchaser of seed.

M. B. BATEHAM.

Columbus, Ohio. April 1—1t.

Madder Roots.

MADDER sets selected for planting—price $1 50 per bushel if not less than 10 bushels are ordered. Will be carefully packed and forwarded by railroad or canal, if desired, adding cost of boxes.

M. B. BATEHAM.

Columbus, Ohio, April 1—1t.

The Yam Potato.

FOR sale, 300 bushels of this excellent potato. The price will be sixty-two and a-half cents per bushel, at the farm of the subscriber, or three dollars per barrel at the Erie Railroad, about 30 miles distant. LOTAN SMITH.

Liberty, Sullivan Co., N. Y., April 1—1t.

Durham Bull for Sale.

THE subscriber has for sale a full blood Durham Bull, three years old, bred by J. Haswell of Hoosic, from the stock of Judge Ball. His color is white—is of good form, quiet and docile temper. He will be sold at the low price of $75, as he has been used for two years in the subscriber's herd. J. W. PECKHAM.

Easton, Washington Co., N. Y., April 1.—1t.*

Wire for Fences.

IRON WIRE FOR FENCING, constantly for sale at New-York prices. Z. HOSMER,

April 1, 1850.—6t. 110 Milk St., Boston.

Ayrshire Stock for Sale.

ONE Cow eight years old, imported by the late Richard S. Griswold, Esq.

Also, one Bull, "Governor," two years old, from Mr. Griswold's celebrated imported cow, "Lady Rose."

Specimens of stock from the above named animals, may be seen at the residence of the subscriber. E. M. WOODFORD.

Cottage Farm, West Avon, Ct., April 1, 1850—1t.*

Morgan Hunter and Morgan Chief.

MORGAN HUNTER will stand the coming season, at the stable of S. A. GILBERT, East Hamilton. Terms $10 to insure. This fine horse is seven years old; was bred in Springfield, Vt.; got by Gifford Morgan; dam by the same horse. For figure and description, see *The Cultivator* for 1849, page 216.

MORGAN CHIEF, will be three years old on the 18th of June next. He is a very superior colt; was got by Gifford Morgan, dam by Green Mountain Morgan. See *The Cultivator* for 1849, page 67. He will be kept for a few mares only, at the stable of H. R. ACKLEY, East Hamilton. Terms $10 to insure. ACKLEY & GILBERT.

East Hamilton, Madison county, N. Y., April 1, 1850.—2t.

Fruit Trees, Scions, and Strawberry Vines.

THE subscriber, general agent for ELLWANGER & BARRY, nurserymen, for the sale of Trees, can supply orders for any quantities, or for Shrubbery and Scions of the best kinds, grown at Rochester; and where persons would wish a selection made of either, he would advise without charge.

STRAWBERRIES.—He is also agent for M. G. WARNER, for the sale of Strawberry Vines, which can be nicely packed in moss and sent over the Continent with safety, by express or otherwise. The kinds below mentioned are among the best grown:

Burr's New Pine,	Crimson Cone,
Rival Hudson,	Black Prince,
Boston Pine,	Columbus,
Hovey's Seedling,	Bishop's Orange
Large Early Scarlet.	

The Burr's New Pine, is one of the best extant, and the Rival Hudson for a market fruit is No. 1, and for preserving is the *very best.* Post paid applicants with funds enclosed, shall have prompt attention. He refers to Mr. Tucker, publisher of *The Cultivator.*

Printed Catalogues furnished free to applicants.

Price of Strawberry Vines, 50 cents per dozen. Address

JAMES H. WATTS.

Rochester, April 1, 1850—2t.

Anti-Pyric Paint.

FIRE, WATER, AND WEATHER PROOF.

THIS Paint, manufactured by "The New-York Anti-Pyric Paint Company," is a new species. It is composed of materials entirely fire proof, being scarcely destructible by the blow pipe. It forms a coating impervious to air and moisture, and is completely fire-proof from all the ordinary causes of FIRE, whether Sparks, Cinders, or Heat from a neighboring building in flames.

It is especially adapted for the following uses:—To protect

Roofs from Fire and Leaking,
Wood of all Kinds from Decay,
Tin from Rust, Iron Work, &c., &c.

And it will effectually accomplish it by being properly applied.

It is also the best PAINT for the Walls of Brick Buildings, giving them the appearance and solidity of stone, and saving the necessity of using sand, which is annoying, and will last but a short time. Besides this, it NEVER PEELS OFF. See Certificate from Professor REID.

Persons desirous of trying this Paint, are requested to call at the office of the subscriber, who keeps it constantly on hand for sale, and where every information will be given.

GEO. G. SHEPPARD.

Sole Agent for the N. Y. Anti-Pyric Paint Co., 187 Water Street, near Fulton.

CERTIFICATE.

N. Y. Hospital, Dec. 8, 1849.

I have made an experimental investigation into the properties of a paint prepared by the N. Y. Anti-pyric Paint Company, named ANTI-PYRIC PAINT. Being acquainted with its composition, I would state, that it is of an incombustible nature; and from the dense and adhesive qualities it is prepared of, that it is eminently protective against the action of the atmosphere, and will have the effect of preserving wood and other surfaces on which it may be spread, from decay. With regard to its Anti-Pyric qualities, I would say, from the experiments I have made, that there is no probability of shingles and other wooden surfaces painted with it, taking fire from showers of ashes and cinders, one of the principal causes of the disastrous character of our fires. I consider that the "New-York Anti-Pyric Paint Company," has brought forward a valuable and useful improvement in a necessary article, and that it deserves the consideration of the public, as a safeguard against fires, and the earnest attention of the Insurance Companies, as greatly lessening their risks.

LAWRENCE REID,

Professor of Chemistry, and Lecturer on Medical Chemistry, New York Hospital.

April 1—1t.

New Patent Churn.

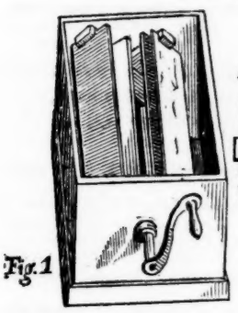


Fig. 1

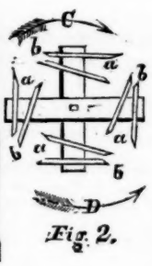


Fig. 2.

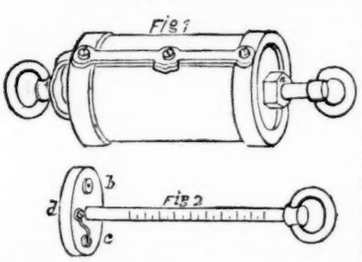
THIS churn is offered to the public with the fullest confidence in its superiority over any other crank churn in use. It has all the advantages of the crank churn without having any of their objections, the iron rod is dispensed with and the difficulty of gathering the butter is removed, as this arrangement of the floats is the best for gathering of any ever before offered. For further particulars, see Catalogue of Albany Agricultural Warehouse, or February No. of *Cultivator*.

The Silver Medal of the American Institute was awarded this churn, as the best of a large variety exhibited at their Fair in October last.

Also, Kendall's, Gault's and Dash Churns, constantly on hand at the Albany Agricultural Warehouse of

H. L. EMERY,
April 1, 1850. 369 & 371 Broadway.

Emery's Cylindrical Dynamometer.



THIS instrument is intended to be used as a comparative test of the power required to overcome the resistance of bodies under draft, & more particularly that of Plows. The common spring instrument has many faults, among which the most important are its *vibration* and its want of *self Determination* in pounds of the medium force constantly required to perform the work. This invention is not only free from these faults, but it also indicates the absolute relative quantity of force expended in performing a given quantity of work. It consists of a strong iron cylinder with piston ground steam tight, the piston rod passing through a stuffing box and terminating with a ring. The cylinder being filled with the proper fluid, and a small hole made through the piston, by applying the force to the ring, the piston is drawn out in a given time and by a given force. The State Agricultural Society, American Institute, and the Worcester Mechanics Association, each awarded the inventor a silver medal and the highest recommendation for its correctness and utility.

County Societies, Plow manufacturers and others desiring these instruments, can obtain them by addressing H. L. EMERY,

Albany Agricultural Warehouse,
April 1, 1850. 369 & 371 Broadway, Albany.

Morgan Horse Black-Hawk.

THIS well-known stallion will stand for the present season at the stable of the subscribers; terms, $20 the season. The superiority of this horse as a stock-getter, is becoming more and more highly estimated, as his progeny increase, and their powers as fast trotters and durable roadsters are demonstrated. For particulars, see large bills. D. & D. E. HILL.

Bridport, Vt., April 1.—3t.

The Imported Thorough-bred Horse

CONSTERNATION, will stand for mares the coming season, at the farm of the subscriber, near the city of Syracuse.

TERMS.—Five dollars in advance, and five dollars additional if the mare is got in foal. Mares left with the subscriber during the season, or until he consents that they shall return, will be insured for $10. Pasture 3 shillings per week. No mare taken except at the risk of the owner. J. B. BURNET.

April 1, 1850.—3t.

The Morgan Horse

MAJOR GIFFORD, will stand the ensuing season on Mondays, Tuesdays and Wednesdays, at the stable of E. W. Sheldon, in Sennett. On Thursdays and Fridays, at the stable of S. B. Rowe, in Camillus, and on Saturdays, at the stable of John C. Munro, in Bellisle.

Major Gifford is seven years old this spring, his color a beautiful chestnut—was sired by the Gifford Morgan, his dam a pure Morgan. Breeders of good horses are invited to call and see him

TERMS.—Ten dollars to insure. Pasturage furnished. Accidents and escapes at risk of owners. MASON & CO.

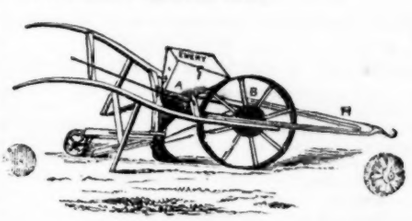
April 1, 1850.—3t.*

Colman's European Agriculture.

EUROPEAN AGRICULTURE, from personal observation, by HENRY COLMAN of Massachusetts. Two large octavo vols.—price, neatly bound, the same as published in Nos., $5. For sale at the office of THE CULTIVATOR.

Emery's Seed and Corn Planter,

For Hand or Horse Power.



THIS is acknowledged the best machine for the purpose, now in use. They have been in use four years, and the demand constantly increasing. The first premiums of the N.Y. State Ag. Society, the Massachusetts Charitable Association, the American Institute, and at every county society where it has been exhibited, have been awarded it.

It is equally well adapted for all small seeds in drills, or Corn, Beans, Peas, &c., in either hills or drills, any quantity and distance apart, &c., &c.

It is driven by a gear motion without bands, which insures a constant and uniform action. Price $14. For sale at the

Albany Agricultural Warehouse,
Nos. 369 & 371 Broadway.
April 1, 1850. H. L. EMERY.

For Sale.

THE horse SIR HENRY ECLIPSE. He is four years old, past, and is over seventeen hands high; girth at the breast, where the collar rests, 5 feet 2 inches; lengthwise, around the breast and rump, 13 feet 7 inches; from inside of hip to shoulder, 1 foot 10 inches; round the thigh, 3 feet 8 inches; round the arm, 1 foot 11 inches.

He is a dark chestnut, and is hardly excelled by any horse in the land; and his stock bids fair to excel any of the horse kind ever in this country. At three years old, he took the first premium at Buffalo, for colts of that age, and if justice had been done, he would have taken the sweep-stakes at Syracuse.

I also offer the horse PETER MORGAN or Morgan Messenger. He is five years old, past; is a dark bay; fast trotter; stands 15¾ hands high, and is well shaped in all respects.

If not sold, there will be notice in the May number of *The Cultivator*, of the place of standing for these horses, the coming season. Any communication, post paid, will receive strict attention.

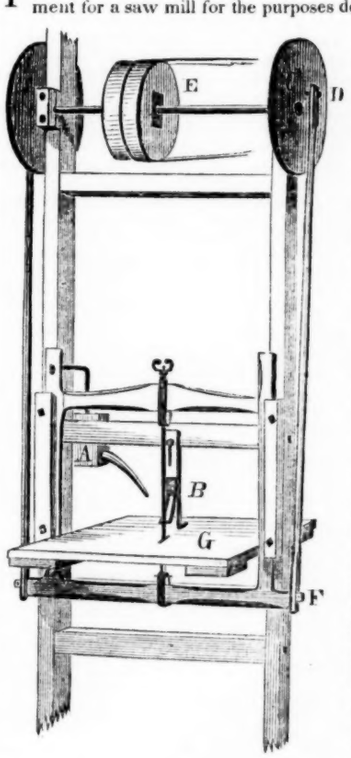
JOHN D. SPINNER.

Herkimer, N. Y., April 1, 1850—1t.

Upright Saw Mill.

For Sawing Curved work in Wagon making, Cabinet Work, &c., &c.,

THE annexed cut represents the most simple and effectual arrangement for a saw mill for the purposes designed.



As these are made, they are equally well adapted for our 1 Horse Power, or may be used by steam or water power as desired. Its construction is a simple frame with two uprights from 8 to 12 feet long, with 3 cross beams of 3½X6½ inch square. Near the upper end is hung a straight shaft with fly wheels D on each end, outside the frame.

E. Two driving pulleys, (one loose.)

C. Wrist pins in fly wheels, to drive connecting rods.

F. Connection of the driving rods, and lower part of saw gate.

G. Table.

B. Dog for holding down plank.

A. Wind Box and Pipe, for cleaning away sawdust.

These mills can be afforded complete for $35, ready to be driven by horse, steam, or water power. They are warranted to be superior to any thing of the kind heretofore offered—and with one of the R. Road Horse Powers, is an important acquisition to mechanics having heavy or curved sawing to do.

For sale at the Agricultural Warehouse of

H. L. EMERY,
April 1, 1850. 369 & 371 Broadway, Albany, N. Y.

N. B. The whole can be taken to pieces and packed for shipment to any part of the country. Weight about 300 pounds.

Highland Nurseries, Newburgh, N. Y.

(*Late A. J. Downing & Co.*)

THE PROPRIETORS beg leave to inform their patrons, and the public in general, that their stock of

Fruit and Ornamental Trees, Shrubs, Roses, &c.,

For Spring planting, is unusually large and thrifty, and embraces all of the best varieties introduced into notice in this country or Europe; of Apple, Pear, Plum, Cherry, Peach, Nectarine, Apricot, Grapevines, Gooseberry, Currants, Raspberry, Strawberry, &c., &c.

Portugal Quince trees, standards, extra size, each....$1 00
do. do. quenouille, do. 1 00
Angers, (true,) extra 1 00
Trees of the usual size 0 50

Also, *Pears* on Quince, and *Apple* on Paradise stocks, for dwarf trees.

The stock of Ornamental Trees, Shrubs, &c., is very large; and quantities to dealers, or planters on a large scale, will be furnished at greatly reduced rates.

Hedge Plants.

A large stock of Buckthorn, and Osage Orange plants.

Also, a large stock of Rhubarb and Asparagus roots.

The entire stock has been propagated under the personal supervision of A. SAUL, whose long connection with this establishment is some guarantee, from the reputation it has gained, (and the present proprietors are determined to merit,) as to the genuineness and accuracy of the present stock.

Orders respectfully solicited, and will receive prompt attention, which will be carefully packed and shipped to any part of the Union or Europe.

Catalogues furnished gratis to post-paid applicants.

Feb. 1, 1850—3t. A. SAUL & CO.

Syracuse Nurseries,

THORP, SMITH & HANCHETT, PROPRIETORS,

Syracuse, N. Y.

WE have now standing in our nurseries, of suitable age and size for transplanting,

More than 100,000 *Fruit Trees,*

Consisting of the various kinds adapted to this climate, from which, persons desiring to establish *Apple, Pear or Peach Orchards* for profit, or those who wish merely to furnish their *Gardens* or *Town Lots* with a few select varieties for their own pleasure and enjoyment, can provide themselves with *all in quantity* which may be wanted, and *every thing in kind* which is most worthy of cultivation.

Our stock embraces, of Fruit Trees,

Apple and Cherry, of extra size;
Peach and Plum, of the best early, medium and late varieties;
Standard Pear, of unusual thriftiness and beauty;
Dwarf Pear, among which are the following choice kinds:

Ananas,	Duchess d'Angouleme,	Madeleine,
Bartlett,	Doyenne White,	Passe Colmar,
Beurre Diel,	do Boussouck,	Summer Franc Real,
do Piquey,	Easter Beurre,	Soldat Laboreur,
do Capiaumont,	Glout Morceau,	Van Mons L. Le Clerc,
Colmar d'Aremberg,	Louise Bonne d'Jersey,	Vicar of Winkfield

Of Ornamental Trees,

1,000 *Horse Chestnuts*, 10 to 12 feet high, very stocky, and well formed;
1,000 *Mountain Ash*, American, 8 to 10 ft. high, with fine heads;
500 do. do. European, 6 to 8 ft high, do do
500 *Ailanthus*, large and regularly shaped.

And of Miscellaneous Productions,

Fir Trees, Silver-leaved Abele, Snowballs, Michigan Roses (double,) Buckthorn, bearing Grape vines, Seedling Horse Chestnuts, 1 and 2 years old, Quince Stocks, Quince Trees, &c., &c., &c. All or any of which will be sold at very reasonable prices,

At Wholesale or Retail.

As no pains have been spared to give our Trees while in the nursery, a vigorous and healthy start, they do not require, on transplanting, that tedious process of wet-nursing which is indispensable to bring up those of a slow, lean, and stunted growth.

☞ *Catalogues* furnished, as usual, to *post-paid* applications.

Syracuse, March 1, 1850—2t.

Take Notice.

THREE Months Extra Pay and One Hundred and Sixty Acres of Land will be procured for all who enlisted for five years, or during the war of 1812, and for all, including Volunteers who served in Mexico, and for the heirs of all who have died in the service.

Information will be given to relatives, Free of Charge, by writing to G. F. LEWIS, Detroit, Michigan, (postage paid.)

Those who do not know what became of their friends, write when and where they joined the army. Feb. 1—3t.*

A Rare Chance.

THE subscriber offers for sale, or in exchange for serviceable horses or mares, his splendid bay Colt, of the "Surprise" stock. His interest in the Norman horse, makes it desirable to be free from his charge. The stallion offered, is nearly five years old, and from his size and muscular developments, promises finely. Some superior foals of his get, can be shown. Any communication may be addressed to ROBERT B. HOWLAND,

March 1—2t Union Springs, Cayuga Co., N. Y.

To Fruit Growers.

THE subscriber cultivates at his various nurseries, and has for sale at his residence, *Eustis St., Roxbury, Mass.*, all the choice varieties of the

Pear, Apple, Plum, Cherry, Peach, and other Fruit Trees. Raspberries, Gooseberries, Currants, Grape Vines, Strawberries, Asparagus Roots, &c.

Also, several thousand Pear Trees on the quince, 1, 2, 3, 4, and 5 years from the bud.

Particular attention paid to the cultivation of the *PEAR;* persons wishing extra sized trees, *or Trees on Quince Stocks in a bearing state*, will please call at the nurseries, and make their own selection.

Buckthorn for Hedges, One, Two and Three Years Old.

Ornamental Trees, Shrubs, Roses, Herbaceous Plants, Pœonies, &c.

Scions of all the varieties of the Pear, of established reputation, and also of other fruits.

The whole for sale at the market price.

SAMUEL WALKER,

March 1, 1850.—2t. Roxbury, Mass

Trees! Trees!! Trees!!!

FOR SALE, at Mount Ida Nursery, Troy, N. Y., a choice variety of Fruit Trees, comprising Apples, Pears, Peaches, Plums, and Cherries, of the most approved kinds—the greater part of them worked from bearing trees, and all of them by the subscriber—therefore he can recommend them with confidence. He would also say to those that have not had the experience, that trees brought from the South (if they do live) do not grow as thrifty for a number of years, as those raised in a Northern latitude, which many persons can prove from experience. He also pays particular attention to the transplanting of his trees so as to have them well rooted.

Also, a good variety of Shade Trees, consisting of Scotch Elm, Sycamore, Linden, Horse Chestnut, Mountain Ash, Evergreen Privet for Hedges, China and Hardy Roses, &c., &c.

Catalogues and other information can be had of the Nurseryman,

Feb. 1—6ms. JOSEPH CALDWELL.

Highland Nurseries, Newburgh, N. Y.

A. SAUL & CO., being about to clear off the entire stock of one of their nurseries, adjacent to the residence of Mr. A. J. Downing, they would call especial attention of Nurserymen, or persons about to commence the business, to the stock of trees thereon. They consist principally of Pears, including all the leading and standard varieties, from 2 to 4 feet high. Also, a lot of Plum and Cherry Trees, and some Ornamental Trees; many of which are good saleable trees. All of which will be sold at such reduced rates, as to make it cheap stock for young nurserymen to plant out.

March 1—2t.

Agricultural Warehouse,

193 *Front Street, New-York.*

THE subscriber, manufacturer and dealer in *Agricultural Implements*, offers for sale one of the largest assortments to be found in the United States. Among which are the celebrated *Premium Plows*, which were awarded the highest premium of the *New-York State Fair* in 1847, and of the *American Institute* in 1846, 1848, and 1849. Also, the *Centre Draught, Eagle*, and all other *Plows* mostly in use. *Corn Shellers, Straw Cutters, Fanning Mills, Portable Grist Mills, Horse Powers, Threshing Machines, Seed Sowers, Wheelbarrows, &c.* All of which will be warranted to be of the best quality and sold at the lowest rates.

JOHN MOORE,

March 1—3t. 193 Front Street.

Highland Nurseries, Newburgh, N. Y.

Late A. J. Downing & Co.

20,000 Apple Trees of the most approved varieties, for sale, (of *extra size*, from 8 to 12 ft. high, and 3 to 5 years' growth,) at $20 per hundred.

Persons wanting trees to sell again, will be dealt liberally with.

Feb. 1, 1850—3t A. SAUL & CO.

Wanted.

A YOUNG man with a small family to take charge of a nursery, who has some knowledge of farming, and is thoroughly acquainted with the propagation of Fruit Trees.

He must be well recommended as a man of integrity, and to be moral and temperate in his habits. None other need apply.

RUFUS WHITTIER.

Chickopee, Mass., Feb. 1, 1850.—3t.

Transactions of the N. Y. State Ag. Society.

TRANSACTIONS of the New-York State Agricultural Society, from 1841 to 1849, eight vols., price $8, for sale at the office of THE CULTIVATOR.

Poultry Books.

THE American Poulterer's Companion, by C. N. BEMENT—price $1.

The American Poultry Yard, by D. J. BROWNE and SAMUEL ALLEN—price $1.

The American Fowl Breeder, by an Association of Practical Breeders—price 25 cents.

For sale at the office of THE CULTIVATOR

Stocks, Scions, Evergreens, Strawberry Plants, &c

B. M. WATSON offers for sale at the *Old Colony Nurseries*, PLYMOUTH, Mass., Stocks of Fruit Trees of first rate quality, suitable for spring grafting and budding in the coming summer, at the annexed prices per 1000. Apple, 1 year, strong. $5; 3 years, transplanted, $10—Pear, 1 year, $8; 2 years, $15; 3 years, transplanted $20—Plum, 2 years, $15—Cherry, 2 years, $12; 3 years transplanted, $15—Quince, large and fine, $18; 1 year, strong. $12—Mahaleb, strong, $25—Paradised, strong, $25—St. Jean, (dwarfer) $5 per 100. Ash, Maple, Laburnum. Lime, SpanishChestnut, Poplar, Mountain Ash, Elm, Alder, &c., &c., 4 feet, at $3 to $8 per 100. Arbor Vitæ, Norway Spruce, Scotch Fir, Balsam Fir, Silver Fir, Larch, Red Cedar, 1 to 2 feet, $5 to $10 per 100.

SCIONS. Apple scions, (fine sorts) $1.50 per 100. Paradise cuttings $8 per 1000. Scions of the finest sorts of pear of established reputation (say 30 sorts,) and of other fruits, $2 per 100, $15 per 1000.

STRAWBERRIES. Burr's New Pine, $4 per 100; Boston Pine, $1; Hovey's Seedling, $1; Richardson's Early, Late and Cambridge (fine sorts) $1.50 per doz.; Early Virginia Scarlet, $1 per 100; Jenny's Seedling. $3; Aberdeen Beehive, $5; Swainstone, $3; Myatt's Eliza, $2; Crimson Cone, $2; Black Prince, $5; Deptford Pine, $3; Princess Alice Maude, $3; Keene's Seedling, $2; Willey's Seedling, $3; White wood, $1;—25 cents to $1 per dozen.

Also, Dwarf and Standard Pears, select Shade Trees, Shrubs and Climbers; Weeping Trees for lawns, Roses, Phloxes, Verbenas, Chrysanthemums, and other fine plants for masses, at low prices, of which a priced list will be sent, post paid, on application.

Also, Pear seed of prime quality.

Feb. 1, 1850.—3t.

Horse Powers and Threshing Machines.

E. PLANT, No. 30 Cedar Street, New-York, Agent for the Proprietor, for making and selling the "Warren" Improved Two and Four Horse Powers and Threshers. Also, "Trimbles."

Price of the "Warren" Two Horse Power and Thresher, only $80
do do Four do do do $110
Price of the "Trimble" Two Horse Power, (without Thresher,) $60
do "Warren" do do do do $50
do do Four do do do $75

Bands, from $4.50 to $6.

These *latest Improved* Threshers and Powers give universal satisfaction, and are deemed far superior to any others known heretofore for any thing like their cost.

Cash Orders filled promptly.

N. B. *PURCHASING & COMMISSION AGENCY.*

The undersigned also continues the business of the late E. Plant & J. Plant, (E. Plant & Co.,) of Purchasing for Orders, on Credit or for Cash, Dry Goods, Groceries, Hardware, &c., &c., for a commission of 2½ per cent. Produce, such as Sugar, Cotton, Tobacco, Peltries, &c., also received and sold on Commission. E. PLANT,

Dec. 1, 1849—6t. No. 30 Cedar St New-York.

Poudrette.

THE LODI MANUFACTURING CO., offer their new and improved Poudrette, for sale at their usual rates:—1 bbl. $2—3 bbls. $5, and $1.50 per bbl. for any quantity over 7 bbls, delivered free of expense on board of vessel in New York. At the Factory, where vessels drawing 8 feet water can come, it will be sold at 25 cents per bushel.

The expense per acre in manuring corn with Poudrette, will amount to about $4, calculating 25 cents per bbl. freight, and all the necessary labor included. On land previously manured, or on good sward land, one gill to the hill is sufficient—on poor ground, a good crop can be raised by one gill at planting, and one at the last hoeing. The cost of the labor alone in manuring corn in the hill with barn yard manure, will amount to more than the first cost of the Poudrette, with freight and all charges added; and the effects of Poudrette are quicker, more vigorous, and the corn reaches maturity earlier. A fair trial, *however small*, is respectfully solicited.

A pamphlet containing instructions for use, certificates from some of the first Agriculturists in the United States, and much valuable information will be sent *gratis*, to any one applying (*post paid* if by letter,) to "THE LODI MANUFACTURING COMPANY, 66 Dey street, New-York. Feb. 1—4ms.

Isabella Grape Vines,

OF proper age for forming vineyards, propagated from and containing all the good qualities which the most improved cultivation for over twelve years has conferred on the Vineyards at Croton Point, are offered to the public. Those who may purchase will receive such instructions as will enable them to cultivate the grape with entire success, (provided their locality is not too far north.) All communications, post paid, addressed to R. T. UNDERHILL, M. D., No. 310 Broadway, New-York, will receive prompt attention.

He feels quite confident that he has so far meliorated the character and habits of the grape vines in his vineyards and nurseries by improved cultivation, pruning, &c.. that they will generally ripen well, and produce good fruit when planted in most of the Northern and all the Western, Middle and Southern States. March 1, 1850—2t.

The American Fowl Breeder,

A New and Valuable book,

CONTAINING full information on Breeding, Rearing, Diseases and Management of

Domestic Poultry,

And instructions concerning the choice of pure Stock, Crossing, Caponising, &c., &c., *WITH ENGRAVINGS.* By an association of Practical Breeders.

The above valuable work is just published by John P. Jewett & Co., Cornhill, Boston, and it is offered at the extremely low price of *Twenty-five Cents* per copy, to bring it within the means of every man interested in Poultry.

☞ *We want 100 Good Faithful Agents,* ☜

To sell this work in every county in New England, New-York, Pennsylvania and the West, in connection with

Cole's American Fruit Book,
AND
Cole's American Veterinarian.

Active and intelligent men can make money at the business.

Address, post paid, the publishers.

JOHN P. JEWETT & CO.,
Cornhill, Boston.

P. S. The American Fowl Breeder is done up with thin covers, and can be sent by mail to any part of the country. Any person sending a quarter of a dollar by mail, *post paid*, shall receive a copy of the book.

Feb. 1—3t.

Seedlings.

PEAR, Plum, Cherry, Quince, Apples, Horsechestnut, Mountain Ash, and Buckthorn Seedlings for sale. Also seed of the above kinds of trees. Every variety of Fruit and Ornamental Trees, and grafts of the celebrated Virgalieu Pear of Geneva. For sale at the Geneva Nursery, by

W. G VERPLANCK.

Geneva, Nov. 1.—6t.*

Agricultural Warehouse and Seed Store.

No. 197 Water street, (near Fulton,) New-York.

THE subscribers would respectfully invite the attention of planters and dealers in Agricultural and Horticultural Implements, Garden and Field Seeds, &c., &c., to their large and varied assortment of Garden and Field tools, &c., which they are selling at the very lowest rates that they can be procured in the United States. Persons living at a distance can obtain an "illustrated" Catalogue, containing a list of prices, on application by letter, post-paid. Those ordering from us may depend upon their orders being promptly filled.

The following are a part of the utensils kept for sale by us, which are considered the best in use, all of them having taken the highest premiums:—Wheeler's Railway Horse Power, Threshing Machines and Separators, Grant's Fanning Mills, of six different sizes, for Rice as well as Grain; Mayher's do.; Hovey's Spiral Hay, Straw and Stalk Cutters; Smith's Smut Machines and Buckwheat Cleaners; Beal's Corn and Cob Crushers, for Feed, horse power; Sinclair's Corn and Cob Crushers, for hand or power; Sinclair's Hay, Straw and Stalk Cutters, hand or horse power; Greene's Hay Cutters, 12, 18 and 24 knifes; Mayher's Hay and Straw Cutters, 8, 10, 12, 15, and 18 knifes; Wheeler's Stalk or Cane Cutter, Power Machine; Mayher & Co.'s Corn Shellers, single and double-hand or power; Burrall's Corn Shellers and Separators; Warren's do., wood and iron; Smith's Corn Sheller and Separator, (power.) 1200 Bushels per day; Virginia do. do., hand or power, 600 to 800 bushels per day; Sinclair's do. do. and Husker, power; Whitman's Horse Power, Threshing Machine and Cleaners; Taplins' Horse Powers; Mayher's do. do.; Emery's Threshing Machines, one and two horse power; Emery's Seed Sowers or Corn Planters; Emery's Saw Mill; Emery's Centrifugal Churns; Thermometer Churns, of different sizes; Cylindrical Churns; Atmospheric Churns; Self-Acting Cheese Presses; Hay Presses; Bachelor's Corn Planter; Seed Sowers of different kinds; Bark Mills; Cider Mills; Paint Mills; Coffee Mills; Corn Mills; Fitzgerald's Flouring Mills; Prentiss and Pages' Flouring Mills, Burr Stone; Mayher & Co.'s Eagle Improved Polished Plows, of different sizes and patterns; Worcester do; Mayher & Co.'s common do.; Freeborn do.; Prouty and Mear's Plows of all kinds Center Draught; Sub Soil Plows of different kinds and sizes; Side-Hill do; Double Mouldboard do.; Cultivators, Steel and Cast-Iron teeth; Geddes' Harrows; Ox Yokes and Bows; Single and Double Wiffletrees; Ox Scrapers, of Wood and Iron, large and small; Ox Carts; Farm Wagons; Mule Carts; Wheelbarrows; Canal Barrows; Field and Garden Rollers, Iron and Wood; Wheat Drills; Reaping Machines; Mowing Machines; Rice Hullers; Store Trucks; Ground Augers; Ox-leg and Trace Chains; Pickaxes; Grub Hoes; Rakes, Scythe Sneaths, Grain Cradles, Crow-Bars, &c., &c. In fact, we have every thing wanted for Farming purposes, got up in the best manner, style, workmanship, and of the very best material, of all the latest improvements. We have also for sale a large quantity of the best Seed and Spring Wheat, Oats, Corn, Barley, Rye, Peas, Beans, Turnip, Cabbage, Beet, Carrot, Parsnip, Onion, Radish, Asparagus, Clover and Grass Seed, raised expressly for us, and warranted fresh—a very superior article. We also have a large quantity of Guano, Bone Dust, Lime, Plaster and other Fertilizers on hand. Ornamental and Fruit Trees, Shrubs, &c., of the best quality, furnished to order. Also, Wire Cloth, of all kinds; Castings do., Steam Engines, Sugar Mills, Saw Mills, Shingle and Brick Machines, together with Force, Cistern, Well, and other Pumps. JOHN MAYHER & CO.,

Feb. 1, 1850—tf No. 197 Water street, New-York.

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Geo. Glenny's New Farm & Garden Newspaper, "THE COUNTRY GENTLEMAN,"

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Cherry and Apple Seedlings.

CHERRY (15,000) of the Mazzard varieties, averaging about one foot in height, $10 per thousand.

Apple (90,000) at from $3 to $5 per thousand—one foot and over, $5 per thousand.

The above will be well packed and delivered in New-York, free of expense, on orders for 1000 or more accompanied by the cash.

PHILETUS PHILLIPS.

Middletown Point, N. J.—1t.*

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"We rejoice that it bids fair to become the standard Dictionary to be used by the numerous millions of people who are to inhabit the United States." *Signed by* 104 *members of Congress.*

Framingham, Feb. 13, 1850.

"Webster's Unabridged Dictionary has been introduced into the several schools of this town, and we find that it is more used and more useful even than was anticipated. The copious list of Geographical names, is an important feature of this work for schools, and is itself *WORTH THE COST OF THE WHOLE WORK.*

B. G. NORTHORP, A. ALDRICH, CARLTON PARKER, *School Committee of Framingham.*"

Published by G. & C. MERRIAM, *Springfield, Mass.*, and for sale by Booksellers generally.

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BY DERBY, MILLER AND CO., AUBURN,

THE AMERICAN FRUIT CULTURIST,

BY J. J. THOMAS,

CONTAINING directions for the Propagation and Culture of Fruit Trees, in the Nursery, Orchard, and Garden, with Descriptions of the principal American and Foreign Varieties cultivated in the United States. With 300 accurate illustrations. One volume of over 400 pages, 12 mo. Price $1.

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It is a book of great value.—*Genesee Farmer.*

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In the volume before us, we have the result of the author's experience and observations, continued with untiring perseverance for many years, in language at once concise and perspicuous.—*Albany Cult.*

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